ORDER NO.ITD0604018CE

D10 Canada: B07

Service Manual

U/V Tuner Board with MATE I/F Board

TY-FB9TU

SPECIFICATIONS

	Specification
Channel Capability-181	VHF-12: UHF-56: Cable-125
Connection Terminals	
AV INPUT	VIDEO (RCA PIN JACK TYPE) 1.0 Vp-p (75 Ω)
	S VIDEO (Mini DIN 4-pin) Y: 1.0 Vp-p (75 Ω), C: 0.286 Vp-p (75 Ω)
	AUDIO L-R (RCA PIN JACK TYPE) 0.5 Vrms
AV OUTPUT	Video (RCA PIN JACK TYPE) 1.0 Vp-p (75 Ω)
	*Cannot output UHF/VHF signals.
	AUDIO L-R (M3 JACK TYPE) 0.5 Vrms
Digital interface port / (MATE)	RJ-11C
Remote Control Model No.	N2QAFB000003
Mass (weight)	approx. 160 g (5.6 oz) (including batteries)
Operating range	approx. 7 m (23 feet) directly in front of the unit

⚠ WARNING

This service information is designed for experienced service personnel only and is not designed for use by the general public.
it does not contain warnings or cautions to advise non-technical individuals of potential danger in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced service personnel. Any attempt to service or repair the product or products dealt with in this service infomation by anyone else could result in serious injury or death.

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1. Safety Precautions

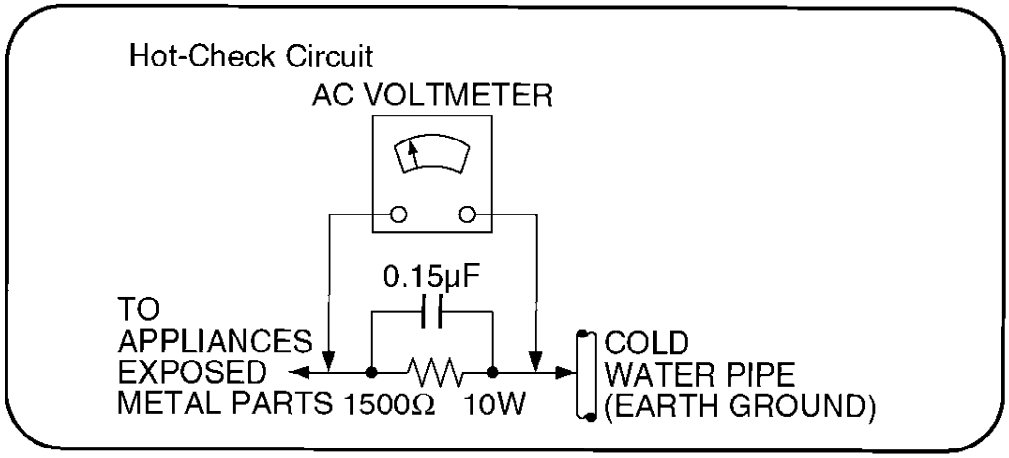
1.1. General Guidelines

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

Figure 1



1.1.2. Leakage Current Hot Check (See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.

2. **Connect a 1.5k Ω , 10 watts resistor, in parallel with a 0.15 μ F capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.**
3. **Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.**
4. **Check each exposed metallic part, and measure the voltage at each point.**
5. **Reverse the AC plug in the AC outlet and repeat each of the above measurements.**
6. **The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.**

2. Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**

4. **Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).**
7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**

   Caution

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).**

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

3. About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.
In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.
The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).
That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.
This model uses Pb Free solder in it's manufacture due to environmental conservation issues.
For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.
PCBs manufactured using lead free solder will have the PbF within a leaf Symbol

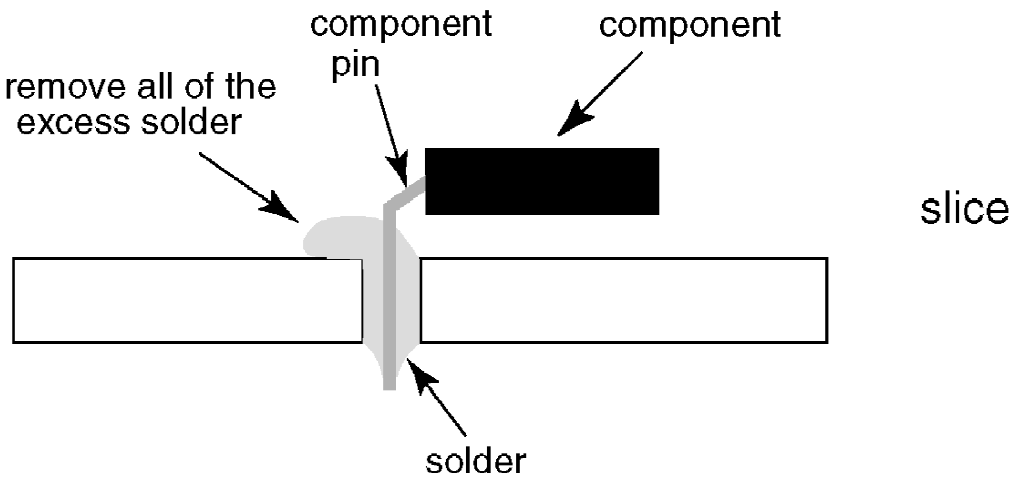
stamped on the back of PCB.

Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40°C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).

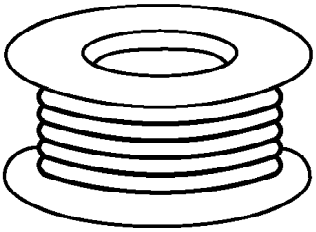
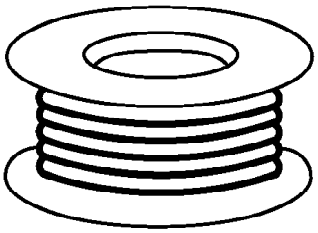
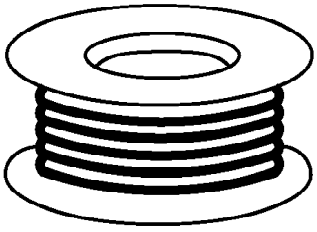
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).
If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.

- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

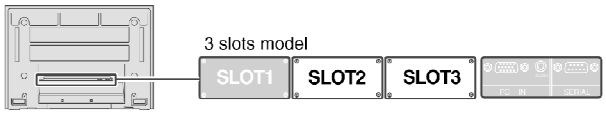
0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

4. Installation

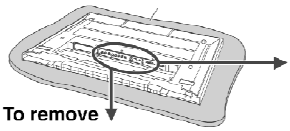
Precautions

- **Before installation**
  Turn the power switch off and disconnect the plug of the display. Disconnect all the plugs connected to the display.
- **Before removing, turn the power off with the tuner board's remote control and then turn the main power off.**
- **When installing or removing the terminal board, exercise care to avoid injury.**
  There may be some sharp-pointed solder joints on the rear side of the board that could cause unexpected injury.
- **When installing the board, fully insert the Board into the slot horizontally until it is firmly plugged into the connector.**
  Note that incomplete insertion may damage the internal components.

■ **Compatible slot Nos. are SLOT2 and SLOT3.**

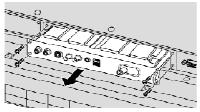


Foam mat or thick soft cloth



To remove

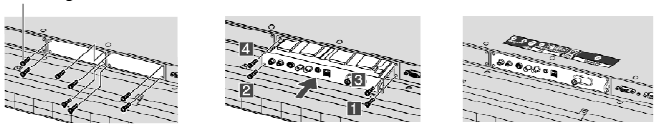
Remove the slot cover. Grip the handle of the terminal board, and slowly pull out in the direction of the arrow.



To install

1. Remove the slot cover.
2. Insert the terminal board until it is firmly plugged into the connector. Tighten screws in the order **1** - **4**.
3. Affix the terminal function label (included).

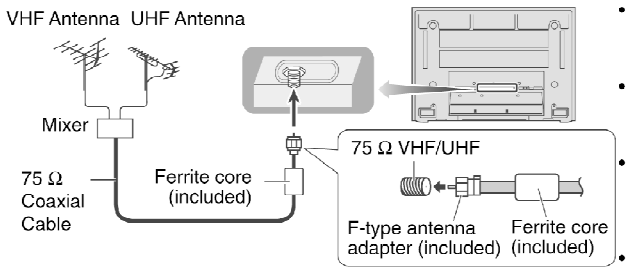
Securing screw



- Make sure that the Board does not ride on the two lower claws.
- Be sure to fasten all screws tightly.
- Have the customer keep the removed Terminal Board for future servicing needs.

5. Antenna connection

For proper reception of VHF/UHF channels, an external antenna is required. For best reception, an outdoor antenna is recommended. The antenna mode must be set to "TV" (SET UP menu–MODE).

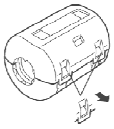


Note

- To obtain optimum quality picture and sound, an Antenna, the correct cable (75 Ω coaxial) and the correct terminating plug are required.
- If a communal Antenna system is used, you may require the correct connection cable and plug between the wall Antenna socket and your television receiver.
- Your local television service center or dealer may be able to assist you in obtaining the correct Antenna system for your particular area and the accessories required.
- Any matters regarding Antenna installation, upgrading of existing systems or accessories required, and the costs incurred, are your responsibility.

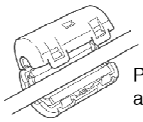
Attaching the ferrite core

1

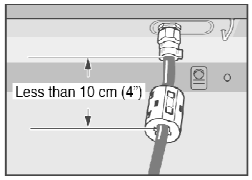


Pull back the tabs (in two places) to open.

2



Put the cable and close.

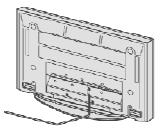


Note

If the ferrite core is not attached, noise may occur in the video or audio.

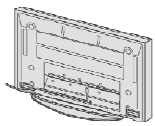
Handling the antenna cable

To avoid noise in the video, hold the antenna cable correctly.



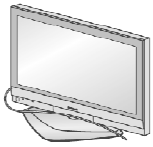
Back

Route away from the display.



Back

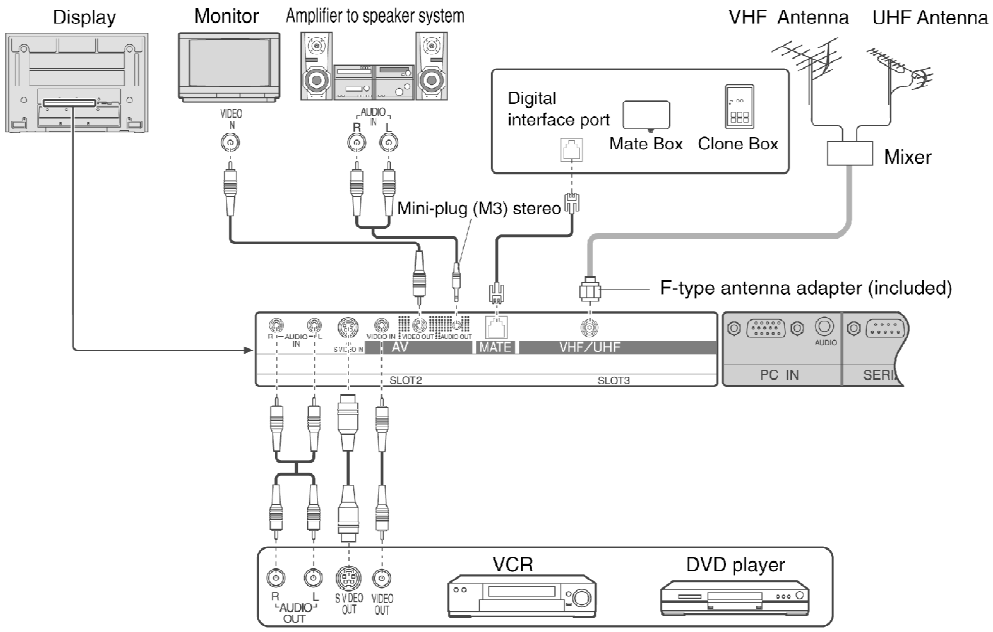
Do not route close to the display.



Front

Do not pass around the front of the display.

6. Connection of external equipment



Note

- Peripheral equipment and optional cables/adapters sold separately unless otherwise indicated.
- S-video signal input (S VIDEO IN) is prior to composite signal input (VIDEO IN).
- A light gun game console using CRT TV's electron-gun scanning system is not compatible with a display.
- VIDEO OUT is available only when "VIDEO1" is selected as the input source for INPUT 2.

7. Circuit Board Layout

7.1. HMB-Board

8. Block and Schematic Diagram

8.1. Schematic Diagram Notes

Important Safety Notice

Components identified by △ mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.

Notes:

1. **Resistor**
   Unit of resistance is OHM [Ω] (K=1,000, M=1,000,000).
2. **Capacitor**
   Unit of capacitance is μF, unless otherwise noted.
3. Coil
   Unit of inductance is μH, unless otherwise noted.
4. Test Point
   ⏚ : Test Point position
5. Earth Symbol
   ⏚ : Chassis Earth (Cold) ⏚ : Line Earth (Hot)
6. Voltage Measurement
   Voltage is measured by a DC voltmeter.
   Conditions of the measurement are following:
   Receiving Signal ..... Colour Bar signal
   All customer's controls ..... Maximum positions
7. When arrow mark (↗) is found, connection is easily found from the direction of arrow.
8. Indicates the major signal flow. : Video ➡ Audio ⇨
9. This schematic diagram is the latest at the time of printing and subject to change without notice.

Remarks:

1. The Power Circuit contains a circuit area which uses a separate power suppier to isolate the earth connection.
   The circuit is defined by HOT and COLD indications in the schematic diagram. Take the follwing precautions.
   All circuits, except the Power Circuit, are cold.
   Precautions
   a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
   b. Do not short circuit the hot and cold circuits or a fuse may blow and parts may break.
   c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.
   Connect the earth of instruments to the earth connection of the circuit being measured.
   d. Make sure to disconnect the power plug before removing the chassis.

TY-FB9TU
Schematic Diagram Notes

8.2. HMB-Board Block Diagram

8.3. HMB-Board (1 of 4) Schematic Diagram

8.4. HMB-Board (2 of 4) Schematic Diagram

8.5. HMB-Board (3 of 4) Schematic Diagram

8.6. HMB-Board (4 of 4) Schematic Diagram

9. Replacement Parts List

9.1. Replacement Parts List Notes

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

RTL (Retention Time Limited)

Note: The marking (RTL) indicates that the Retention Time is Limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

Abbreviation of part name and description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W

Type Allowance

2. Capacitor

Example:

ECKF1H103ZF C 0.01UF, Z, 50V

Type Allowance

Type	Allowance
C : Carbon F : Fuse M : Metal Oxide Metal FIlm S : Solid W : Wire Wound	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%

Type	Allowance
C : Ceramic E : Electrolytic P : Polyester Polyprop lene T : Tantalum	C : ±0.25pF D : ±0.5pF F : ±1pF G : ±3pF J : ±5pF K : ±10pF L : ±15pF M : ±20pF P : +100%, -0% Z : +80%, -20%

9.2. Electrical Replacement Parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3001,02	ECJ2XB1E104K	C 0.1UF, K, 25V	2	
C3003,04	EEEHP1A100R	E 10UF, 10V	2	
C3009	EEEHB1C470P	C 47PF, J, 16V	1	
C3010,11	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C3012	EEEHP1A100R	E 10UF, 10V	1	
C3013	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3014	EEEHB1C470P	C 47PF, J, 16V	1	
C3015	ECJ1XC1H470J	C 47PF, J, 50V	1	
C3016	ECJ1XC1H220J	C 22PF, J, 50V	1	
C3017	ECJ1XC1H680J	C 68PF, J, 50V	1	
C3018	EEEHP1A100R	E 10UF, 10V	1	
C3019	ECJ3YB0J335K	C 33UF, J, 25V	1	
C3021	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3022	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3023	EEEHB1C470P	C 47PF, J, 16V	1	
C3024	EEVHB1C471	E 470UF, 16V	1	
C3025,26	ECJ2VF1C105Z	C 1UF, Z, 16V	2	
C3027	EEEHB1C470P	C 47PF, J, 16V	1	
C3028	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3051,52	ECJ2VF1C105Z	C 1UF, Z, 16V	2	
C3055-58	ECJ2VF1C105Z	C 1UF, Z, 16V	4	
C3059	EEEHP1A100R	E 10UF, 10V	1	
C3060	EEEHB1C100R	C 10PF, J, 16V	1	
C3061	ECJ1VB1E272K	C 2700PF, K, 25V	1	
C3062	EEEHB1H3R3R	C 3.3PF, J, 50V	1	
C3063	ECJ1VB1E223K	C 0.023UF, K, 25V	1	
C3064	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3065	EEEHB0J101P	C 100PF, J, 6.3V	1	
C3066	EEEHB1H4R7R	C 4.7PF, J, 50V	1	
C3067	EEEHB1HR47R	C 0.47PF, J, 50V	1	
C3068	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3069	EEEHB1H1R0R	C 1.0PF, J, 50V	1	
C3070	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3071	EEEHB1H2R2R	C 2.2PF, J, 50V	1	
C3072	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3087,88	ECJ2VF1C105Z	C 1UF, Z, 16V	2	
C3093	EEEHB1C470P	C 47PF, J, 16V	1	
C3094	EEEHB1C220R	C 22PF, J, 16V	1	
C3102	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3103	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3104	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3105	EEEHB0G221P	C 220PF, J, 4V	1	
C3106-21	ECJ1XB1C104K	C 0.1UF, Z, 16V	16	
C3122	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3123-26	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C3127	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3128-34	ECJ1XB1C104K	C 0.1UF, Z, 16V	7	
C3135	ECJ1VB1C103K	C 0.010UF, K, 16V	1	
C3136	ECJ1XC1H330J	C 33PF, J, 50V	1	
C3137	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3138	ECJ3XB0J106M	C 10UF, M,6.3V	1	
C3139	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3140	ECJ1XC1H101J	C 100PF, J, 50V	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3141	ECJ1XB0J105K	C 1UF, K, 16V	1	
C3142	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3144	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3146	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3147	ECJ3XB0J106M	C 10UF, M,6.3V	1	
C3148	ECJ1XB0J105K	C 1UF, K, 16V	1	
C3149	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3150	ECJ1VB1C103K	C 0.010UF, K, 16V	1	
C3151	ECJ1XC1H330J	C 33PF, J, 50V	1	
C3152	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3153	ECJ1XC1H101J	C 100PF, J, 50V	1	
C3154	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3156	ECJ1XB0J105K	C 1UF, K, 16V	1	
C3157	ECJ3XB0J106M	C 10UF, M,6.3V	1	
C3158	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3159	EEEHB0G221P	C 220PF, J, 4V	1	
C3160,61	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C3162-66	ECJ1VF1A105Z	C 1UF, Z, 10V	5	
C3167-78	ECJ1XB1C104K	C 0.1UF, Z, 16V	12	
C3179	EEEHB0G221P	C 220PF, J, 4V	1	
C3180-83	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C3185,86	ECJ1XC1H150J	C 15PF, J, 50V	2	
C3202-06	ECJ1VF1A105Z	C 1UF, Z, 10V	5	
C3207	EEEHB0G221P	C 220PF, J, 4V	1	
C3208-14	ECJ1VF1A105Z	C 1UF, Z, 10V	7	
C3216,17	ECJ1VF1A105Z	C 1UF, Z, 10V	2	
C3253	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3254	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3255	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3256	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3257	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3258	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3259	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3260	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3262	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3263,64	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C3266	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3308	EEEHB0G221P	C 220PF, J, 4V	1	
C3309	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3311	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3313	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3316,17	ECJ1VF1A105Z	C 1UF, Z, 10V	2	
C3318-21	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C3322,23	EEEHB0G221P	C 220PF, J, 4V	2	
C3324	EEEHB0J101P	C 100PF, J, 6.3V	1	
C3325	EEEHB1C470P	C 47PF, J, 16V	1	
C3327-30	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C3350	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3351	ECJ2VF1H103Z	C 0.010UF, Z, 50V	1	
C3352	ECJ1VF1H104Z	C 0.1UF, Z, 50V	1	
C3353	EEEHB1C470P	C 47PF, J, 16V	1	
C3354	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3355	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3357	ECJ3YB1C225K	C 0.022UF, K, 16V	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3402	ECJ2VF1H103Z	C 0.010UF, Z, 50V	1	
C3403	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3405	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3406	EEEHB0J101P	C 100PF, J, 6.3V	1	
C3412	ECJ2XB1A105K	C 1UF, K, 10V	1	
C3414	ECJ2XB1A105K	C 1UF, K, 10V	1	
C3416	ECJ2XB1A105K	C 1UF, K, 10V	1	
C3418	ECJ2XB1H392K	C 3900PF, K, 50V	1	
C3419	EEEHP1A100R	E 10UF, 10V	1	
C3420	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3422	ECJ1XC1H561J	C 560PF, J, 50V	1	
C3423	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3424	EEEHP1E220P	C 22PF	1	
C3430	ECJ2VF1H103Z	C 0.010UF, Z, 50V	1	
C3431	ECJ2XC1H120J	C 12PF, J, 50V	1	
C3432	ECJ2VF1H103Z	C 0.010UF, Z, 50V	1	
C3433	EEEHB1C470P	C 47PF, J, 16V	1	
C3434,35	ECJ1VB1H221K	C 220UF, K, 50V	2	
C3436	ECJ2VF1H103Z	C 0.010UF, Z, 50V	1	
C3437	ECJ2XC1H120J	C 12PF, J, 50V	1	
C3440	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3445	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3447	ECJ1XC1H471J	C 470PF, J, 50V	1	
C3449	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3451	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3453	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3458	EEEHB0G221P	C 220PF, J, 4V	1	
C3459,60	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C3462	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3463	EEEHB0G221P	C 220PF, J, 4V	1	
C3468	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3469	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3471	EEEHB0J101P	C 100PF, J, 6.3V	1	
C3501	EEEHB0J101P	C 100PF, J, 6.3V	1	
C3502	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3503	EEEHB0J101P	C 100PF, J, 6.3V	1	
C3504	EEEHP1A100R	E 10UF, 10V	1	
C3505,06	ECJ2XC1H560J	C 56PF, J, 50V	2	
C3507,08	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C3509	EEEHB0J101P	C 100PF, J, 6.3V	1	
C3510	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3511	ECJ2XB1H271K	C 270PF, K, 50V	1	
C3512	ECJ2VF1H104Z	C 0.1UF, Z, 50V	1	
C3514	ECJ2VF1H104Z	C 0.1UF, Z, 50V	1	
C3515	EEEHB1V470P	E 47UF, 35V	1	
C3516	EEEHB1E101P	C 100PF, J, 25V	1	
C3517	ECJ2XB1H472K	C 4700PF, K, 50V	1	
C3518	EEEHB0J101P	C 100PF, J, 6.3V	1	
C3519	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3520	ECJ2VF1H103Z	C 0.010UF, Z, 50V	1	
C3521	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3522	EEEHB0J220R	C 22PF, J, 6.3V	1	
C3701-05	ECJ1VF1A105Z	C 1UF, Z, 10V	5	
C3706	EEEHB0G221P	C 220PF, J, 4V	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3707-15	ECJ1VF1A105Z	C 1UF, Z, 10V	9	
D3001	MA729	DIODE	1	
D3002	MA3100M	ZENER DIODE	1	
D3050,51	MA111	DIODE	2	
D3053-55	MA111	DIODE	3	
D3350-52	MA8075L	ZENER DIODE	3	
D3354	MA8075L	ZENER DIODE	1	
D3355	MA3062M	ZENER DIODE	1	
D3356	MA111	DIODE	1	
D3401	LNJ107W5PRW	LED	1	
D3403-05	B0JCME000037	DIODE	3	
D3501	MA111	DIODE	1	
D3502	B0JCME000037	DIODE	1	
H1,H2	K1KA80B00037	80P CONNECTOR	2	
H3	K1KA09AA0150	9P CONNECTOR	1	
H4,H5	K1KA07AA0150	7P CONNECTOR	2	
IC3001	CXA2089Q	LINEAR IC	1	
IC3002	C0ABGB000001	IC	1	
IC3051	AN5849SV	IC	1	
IC3101	C0DBEZG00018	IC	1	
IC3102	C0DBZLB00003	IC	1	
IC3103	C1AB00002159	IC	1	
IC3104	PST9128NR	IC (LOGIC)	1	
IC3201	C3HBKZ000002	IC	1	
IC3251	C0ZBZ0000967	IC	1	
IC3301	MM1065ZMR	LINEAR IC	1	
IC3302	C0DBEZG00018	IC	1	
IC3303	AN80L25RMS	IC	1	
IC3305	JLC1562BF	MOS IC (MICON LSI)	1	
IC3350	MC14052BF	MOS IC (CMOS GATE ARRLY)	1	
IC3351	C3EBGC000065	IC	1	
IC3401	C0DBEZE00006	IC	1	
IC3402	C3EBJC000055	IC	1	
IC3403	C0EBE0000120	IC	1	
IC3404	C0JBAZ001839	IC	1	
IC3409	TVRP007	IC	1	
IC3501	C0DBEZG00018	IC	1	
IC3502	C0DBAMA00015	IC	1	
IC3503	C0JBAS000243	IC	1	
IC3699	C3EBGC000065	IC	1	
IC3701	C3HBKZ000002	IC	1	
IC3702	MM1065ZMR	LINEAR IC	1	
JK3001	K1CB106B0027	CONNECTOR	1	
JK3002	K2HA204B0140	JACK	1	
JK3004	K2HA204B0097	JACK	1	
JK3005	K2HC103B0105	JACK	1	
JK3006	K2LB106B0053	JACK	1	
JS3402	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
JS3403-08	ERJ3GEY0R00	M 0 OHM, 1/16W	6	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
JS3501-05	ERJ3GEY0R00	M 0 OHM, 1/16W	5	
JS3506	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
JS3508-12	ERJ3GEY0R00	M 0 OHM, 1/16W	5	
JS3513	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
L3001	J0HABB000003	LC FILTER	1	
L3002,03	J0HABB000004	LC FILTER	2	
L3006	J0E8004B0010	LCR FILTER	1	
L3007	G1C2R2K00006	INDUCTION COIL	1	
L3102-04	J0JCC0000241	CHIP INDUCTOR	3	
L3107	EXC3BB102H	BEAD CHOKE	1	
L3108	EXC3BB221H	BEAD CHOKE	1	
L3201	ELJPA100KFB	CHIP INDUCTOR	1	
L3305-08	ELKE103FA	NOISE FILTER	4	
L3401	ELJPA100KFB	CHIP INDUCTOR	1	
L3501	G1C101M00018	INDUCTION COIL	1	
L3502,03	EXC3BB102H	BEAD CHOKE	2	
L3701	ELJPA100KFB	CHIP INDUCTOR	1	
L3702	EXC3BB221H	BEAD CHOKE	1	
LC3401	ELKE103FA	NOISE FILTER	1	
LC3405	ELKE103FA	NOISE FILTER	1	
LC3409	ELKE103FA	NOISE FILTER	1	
LC3501	ELKE103FA	NOISE FILTER	1	
LC3504	J0HABB000004	LC FILTER	1	
LC3506	J0HABB000004	LC FILTER	1	
Q3001,02	2SD601A	TRANSISTOR	2	
Q3005	2SD601A	TRANSISTOR	1	
Q3006,07	2SB709A	TRANSISTOR	2	
Q3008	2SD601A	TRANSISTOR	1	
Q3052,53	2SD601A	TRANSISTOR	2	
Q3056,57	2SB709A	TRANSISTOR	2	
Q3101	2SB709A	TRANSISTOR	1	
Q3102	2SD1030	TRANSISTOR	1	
Q3104	2SD1030	TRANSISTOR	1	
Q3350	2SD601A	TRANSISTOR	1	
Q3352-54	2SD601A	TRANSISTOR	3	
Q3403	2SD601A	TRANSISTOR	1	
Q3404,05	2SC3757-R	TRANSISTOR	2	
Q3406	2SB709A	TRANSISTOR	1	
Q3409	2SD601A	TRANSISTOR	1	
Q3501	2SD601A	TRANSISTOR	1	
Q3502	B1ABPF000010	TRANSISTOR	1	
Q3503	UN2211	TRANSISTOR	1	
Q3504	2SD601A	TRANSISTOR	1	
Q3551	2SD601A	TRANSISTOR	1	
R3001	ERJ6ENF75R0	M 75 OHM, 1/10W	1	
R3002	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3003	ERJ3GEYJ221	M 220 OHM,J,1/16W	1	
R3004,05	ERJ6ENF75R0	M 75 OHM, 1/10W	2	
R3006,07	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3008	ERJ6GEYJ471	M 470 OHM,J,1/10W	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3009	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3010	ERJ6ENF75R0	M 75 OHM, 1/10W	1	
R3011	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3012	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3014	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3015	ERJ6ENF3300	M 330 OHM, 1/10W	1	
R3028	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3029	ERJ3EKF2200	M 220 OHM, 1/16W	1	
R3030	ERJ3GEYJ221	M 220 OHM,J,1/16W	1	
R3031	ERJ3EKF1000	M 100 OHM, 1/16W	1	
R3032	ERJ3GEYJ221	M 220 OHM,J,1/16W	1	
R3033	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3035	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3036	ERJ6ENF1800	M 180 OHM, 1/10W	1	
R3037	ERJ3EKF2200	M 220 OHM, 1/16W	1	
R3038	ERJ3GEYJ272	M 2.7KOHM,J,1/16W	1	
R3040	ERJ3EKF3300	M 330 OHM, 1/16W	1	
R3041	ERJ6ENF1800	M 180 OHM, 1/10W	1	
R3042	ERJ3EKF6801	M 6.8KOHM, 1/16W	1	
R3043	ERJ6ENF5600	M 560 OHM, 1/10W	1	
R3044,45	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3046	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3047	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3048	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3050,51	ERJ3GEYJ561	M 560 OHM,J,1/16W	2	
R3054,55	ERJ3GEYJ102	M 1KOHM,J,1/16W	2	
R3056,57	ERJ3GEYJ184	M 180KOHM,J,1/16W	2	
R3058,59	ERJ3GEYJ561	M 560 OHM,J,1/16W	2	
R3060	ERJ3GEYJ222	M 2.2KOHM,J,1/16W	1	
R3061,62	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3063,64	ERJ3GEYJ101	M 100 OHM,J,1/16W	2	
R3065	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3067	ERJ6GEYJ471	M 470 OHM,J,1/10W	1	
R3069	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3071	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3083-86	ERJ3GEYJ103	M 10KOHM,J,1/16W	4	
R3091,92	ERJ3GEYJ184	M 180KOHM,J,1/16W	2	
R3093	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3094	ERJ3GEYJ105	M 1MOHM,J,1/16W	1	
R3095	ERJ3GEYJ184	M 180KOHM,J,1/16W	1	
R3096	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3101	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3102	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3104	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3106	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3107	ERJ3GEYJ330	M 33 OHM,J,1/16W	1	
R3108	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3109,10	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3112,13	ERJ3EKF1501	M 1.5KOHM, 1/16W	2	
R3114	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3115	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3116	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3117	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3118	ERJ3GEYJ153	M 15KOHM,J,1/16W	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3119	ERJ3GEYJ121	M 120 OHM,J,1/16W	1	
R3120	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3121	ERJ3GEYJ121	M 120 OHM,J,1/16W	1	
R3122	ERJ3EKF8201	M 8.2KOHM, 1/16W	1	
R3123	ERJ3EKF1502	M 15KOHM, 1/16W	1	
R3124	ERJ3EKF10R0	M 10 OHM, 1/16W	1	
R3127	ERJ6ENF12R0	M 12 OHM, 1/10W	1	
R3129	ERJ6ENF12R0	M 12 OHM, 1/10W	1	
R3131	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3133-35	ERJ6ENF10R0	M 10 OHM, 1/10W	3	
R3140	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3142,43	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
R3144,45	ERJ3GEYJ102	M 1KOHM,J,1/16W	2	
R3147-50	ERJ3GEYJ220	M 22 OHM,J,1/16W	4	
R3152	ERJ3GEYJ561	M 560 OHM,J,1/16W	1	
R3153	ERJ3GEYJ221	M 220 OHM,J,1/16W	1	
R3154,55	ERJ3GEYJ331	M 330 OHM,J,1/16W	2	
R3156	ERJ3GEYJ561	M 560 OHM,J,1/16W	1	
R3157	ERJ3GEYJ221	M 220 OHM,J,1/16W	1	
R3158	ERJ3GEYJ182	M 1.8KOHM,J,1/16W	1	
R3159	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3160-63	ERJ3EKF2701	M 2.7KOHM, 1/16W	4	
R3168	ERJ3EKF2000	M 200 OHM, 1/16W	1	
R3169-72	ERJ6ENF75R0	M 75 OHM, 1/10W	4	
R3173	ERJ3EKF2200	M 220 OHM, 1/16W	1	
R3177	ERJ3EKF1401	M 1.4KOHM, 1/16W	1	
R3178	ERJ3EKF1101	M 1.1KOHM, 1/16W	1	
R3179	ERJ3EKF1401	M 1.4KOHM, 1/16W	1	
R3180	ERJ3EKF1101	M 1.1KOHM, 1/16W	1	
R3181	ERJ3EKF1401	M 1.4KOHM, 1/16W	1	
R3182	ERJ3EKF1101	M 1.1KOHM, 1/16W	1	
R3183	ERJ3EKF1401	M 1.4KOHM, 1/16W	1	
R3184	ERJ3EKF1101	M 1.1KOHM, 1/16W	1	
R3185	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3186	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3189	ERJ3EKF3000	M 330 OHM, 1/16W	1	
R3195	ERJ3EKF1800	M 180 OHM, 1/16W	1	
R3196	ERJ3EKF3000	M 330 OHM, 1/16W	1	
R3250,51	ERJ6GEY0R00	M 0 OHM, 1/10W	2	
R3252	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3253	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R3300,01	ERJ3EKF1501	M 1.5KOHM, 1/16W	2	
R3302	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3303,04	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3305	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3308,09	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3310,11	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3312,13	ERJ3GEYJ101	M 100 OHM,J,1/16W	2	
R3337,38	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3351	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3352	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3353,54	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3356	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3357	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	

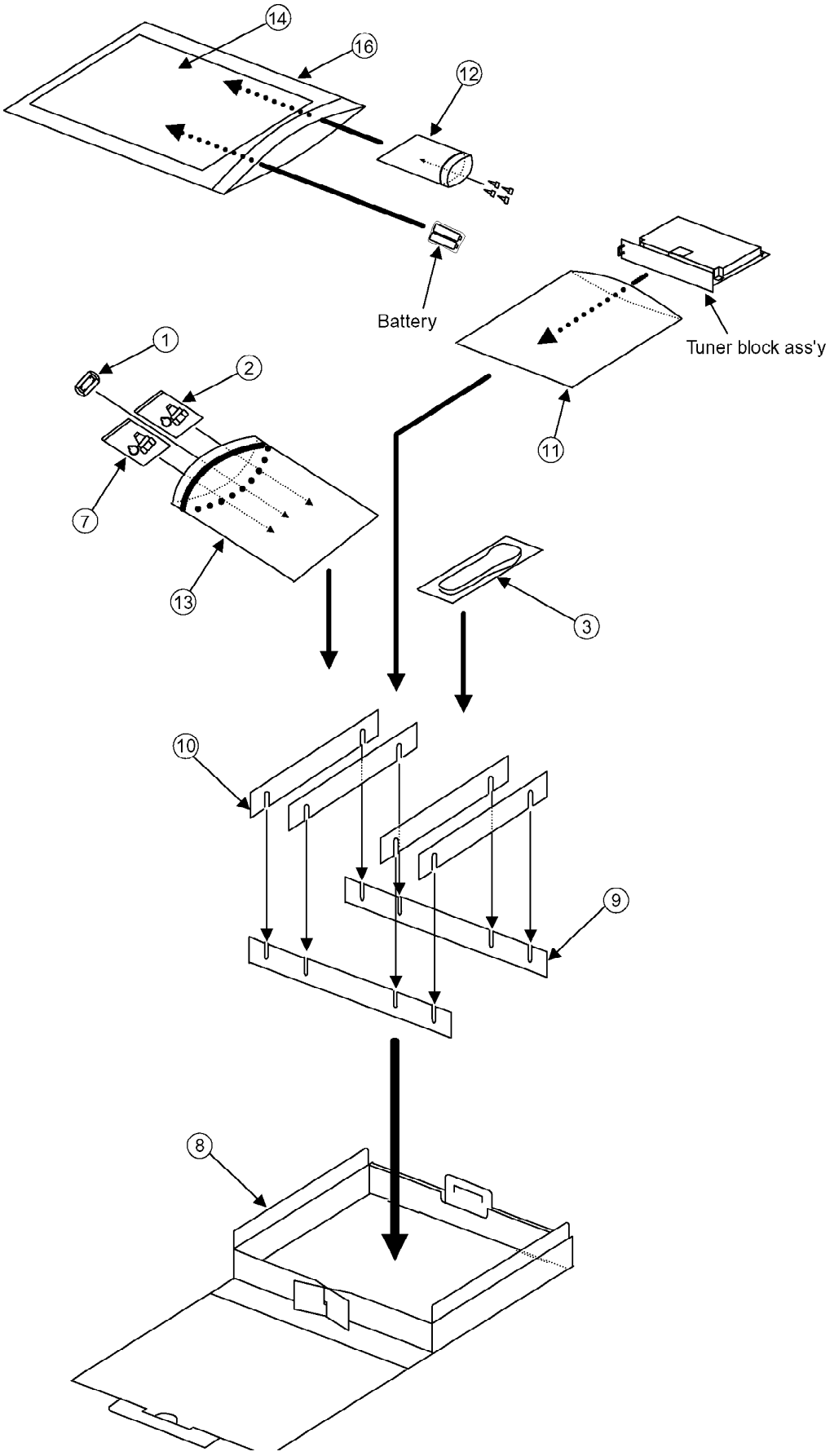
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3358,59	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3360	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3362	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3364	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3365	ERJ3GEYJ104	M 100KOHM,J,1/16W	1	
R3366	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3369	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3371	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3372	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3373	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3374,75	ERJ3GEYJ101	M 100 OHM,J,1/16W	2	
R3377-79	ERJ3GEYJ103	M 10KOHM,J,1/16W	3	
R3380-83	ERJ3GEYJ220	M 22 OHM,J,1/16W	4	
R3384	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3385	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3386	ERJ3GEYJ104	M 100KOHM,J,1/16W	1	
R3387	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3402	ERJ3GEYJ471	M 470 OHM,J,1/16W	1	
R3403	ERJ3GEYJ271	M 270 OHM,J,1/16W	1	
R3404	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3408-10	ERJ3GEYJ103	M 10KOHM,J,1/16W	3	
R3413-15	ERJ3GEYJ101	M 100 OHM,J,1/16W	3	
R3416,17	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3423	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3425	ERJ3GEYJ272	M 2.7KOHM,J,1/16W	1	
R3426	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3429	ERJ3EKF4700	M 470 OHM, 1/16W	1	
R3430,31	ERJ3GEYJ101	M 100 OHM,J,1/16W	2	
R3432,33	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3434	ERJ3EKF4700	M 470 OHM, 1/16W	1	
R3436	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3438	ERJ3EKF4700	M 470 OHM, 1/16W	1	
R3439	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3440	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3441	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3442	ERJ3GEYJ182	M 1.8KOHM,J,1/16W	1	
R3443-45	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	3	
R3446	ERJ3GEYJ104	M 100KOHM,J,1/16W	1	
R3451	ERJ6ENF2001	M 2KOHM, 1/10W	1	
R3452	ERJ6ENF5600	M 560 OHM, 1/10W	1	
R3453	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3454,55	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	2	
R3457,58	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3459	ERJ6ENF6801	M 6.8KOHM, 1/10W	1	
R3460	ERJ6ENF1201	M 1.2KOHM, 1/10W	1	
R3461	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3463	ERJ3GEYJ221	M 220 OHM,J,1/16W	1	
R3464	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R3465	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3466	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3467	ERJ3GEYJ104	M 100KOHM,J,1/16W	1	
R3468-71	ERJ3GEYJ101	M 100 OHM,J,1/16W	4	
R3472-75	ERJ3GEYJ220	M 22 OHM,J,1/16W	4	
R3476	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3477	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3478	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3479	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3480	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3481,82	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
R3484,85	ERJ3GEYJ241	M 240 OHM,J,1/16W	2	
R3486,87	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3488	ERJ3GEYJ333	M 33KOHM,J,1/16W	1	
R3489-91	ERJ3GEYJ103	M 10KOHM,J,1/16W	3	
R3492	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	1	
R3493	ERJ3GEYJ682	M 6.8KOHM,J,1/16W	1	
R3495	ERJ3GEYJ223	M 22KOHM,J,1/16W	1	
R3496	ERJ3GEYJ151	M 150 OHM,J,1/16W	1	
R3497	ERJ6ENF3901	M 3.9KOHM, 1/10W	1	
R3498	ERJ3GEYJ822	M 8.2KOHM,J,1/16W	1	
R3499	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3502,03	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	2	
R3506	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3507	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3508	ERJ3GEYJ153	M 15KOHM,J,1/16W	1	
R3511	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R3512	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3514	ERJ6ENF1001	M 1KOHM, 1/10W	1	
R3515	ERJ6ENF3001	M 3KOHM, 1/10W	1	
R3518	ERJ3GEYJ123	M 12KOHM,J,1/16W	1	
R3519	ERJ3GEYJ202	M 2KOHM,J,1/16W	1	
R3520	ERJ6ENF8203	M 820KOHM, 1/10W	1	
R3521	ERJ6ENF1372	M13.7KOHM, 1/10W	1	
R3522	ERJ3GEYJ471	M 470 OHM,J,1/16W	1	
R3523,24	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3525	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R3526	ERJ3GEYJ104	M 100KOHM,J,1/16W	1	
R3527,28	ERJ3GEYJ102	M 1KOHM,J,1/16W	2	
R3529,30	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
R3532	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3535	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3701,02	ERJ3EKF3000	M 330 OHM, 1/16W	2	
R3704-09	EXB2HV101J	RESISTOR ARRAY	6	
R3711,12	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
RTL	TXNHMB1ZUTU	TUNER BLOCK ASSY	1	⚠
TU3501	ENG36A20GF	TUNER	1	⚠
X3101	H0J202500002	CRYSTAL	1	
X3401	H0J400400017	CRYSTAL	1	

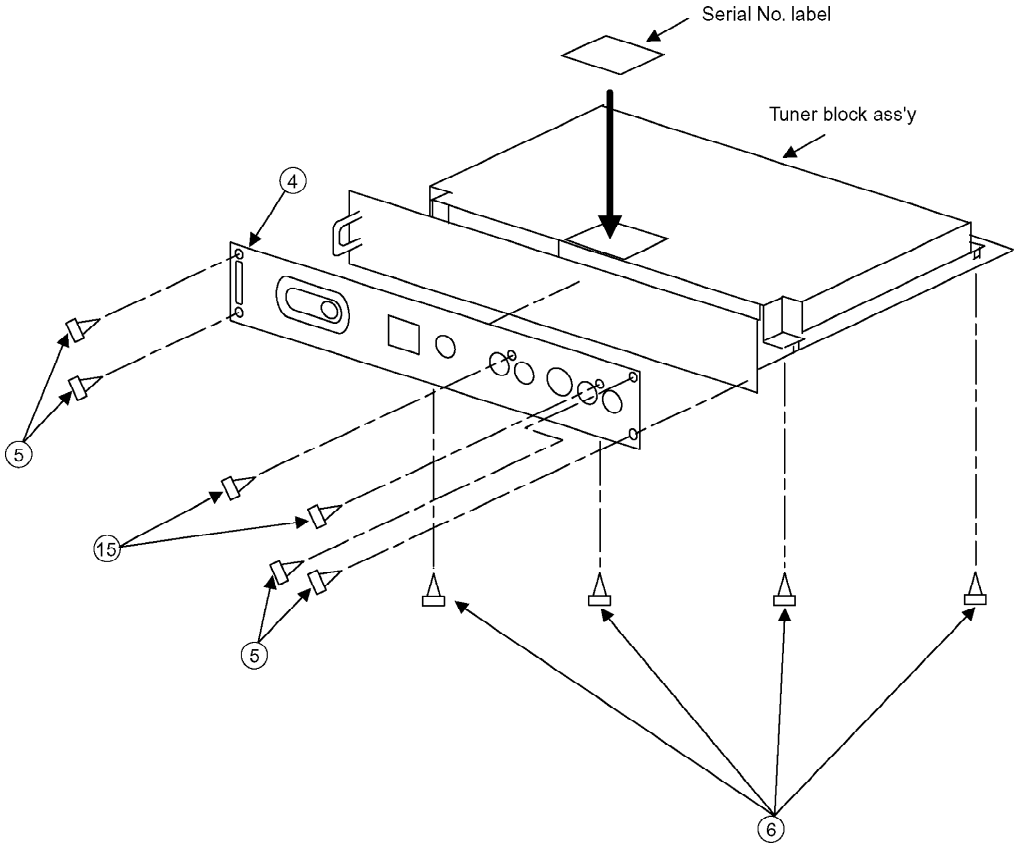
9.3. Mechanical Replacement Parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	J0KF00000018	FERRITE CORE (CHAP.5)	1	
2	K1RGZBA00001	F TERMINAL (5C TYPE)	1	
3	N2QAFB000003	REMOTE CONTROL	1	
4	TBMU662	TERMINAL SHEET	1	
5	THEL0239	SCREW FOR INSTALLATION	4	
6	THEL027N	SCREW FOR SHIELD PLATE	4	
	THNA004N	NUT FOR TUNER TERMINAL	1	
	THW40973N	WASHER FOR TUNER TERMINAL	1	
7	TJSD00901	F TERMINAL (4C TYPE)	1	
8	TPCB06812	CARTON BOX	1	⚠
9	TPDF1137	PARTITION	2	
10	TPDF1193	PARTITION B	4	
11	TPEH161	AIR MAT	1	
12	TQE6691	POLY BAG FOR SCREW	1	
13	TQEF035	POLY BAG FOR FERRITE CORE	1	
14	TQZH751	INSTRUCTION BOOK	1	⚠
15	XTV3+10JFJ	SCREW FOR AV TERMINAL	2	
16	XZBT6506	POLY BAG (INSTRUCTION BOOK)	1	

9.4. Parts Location (1)

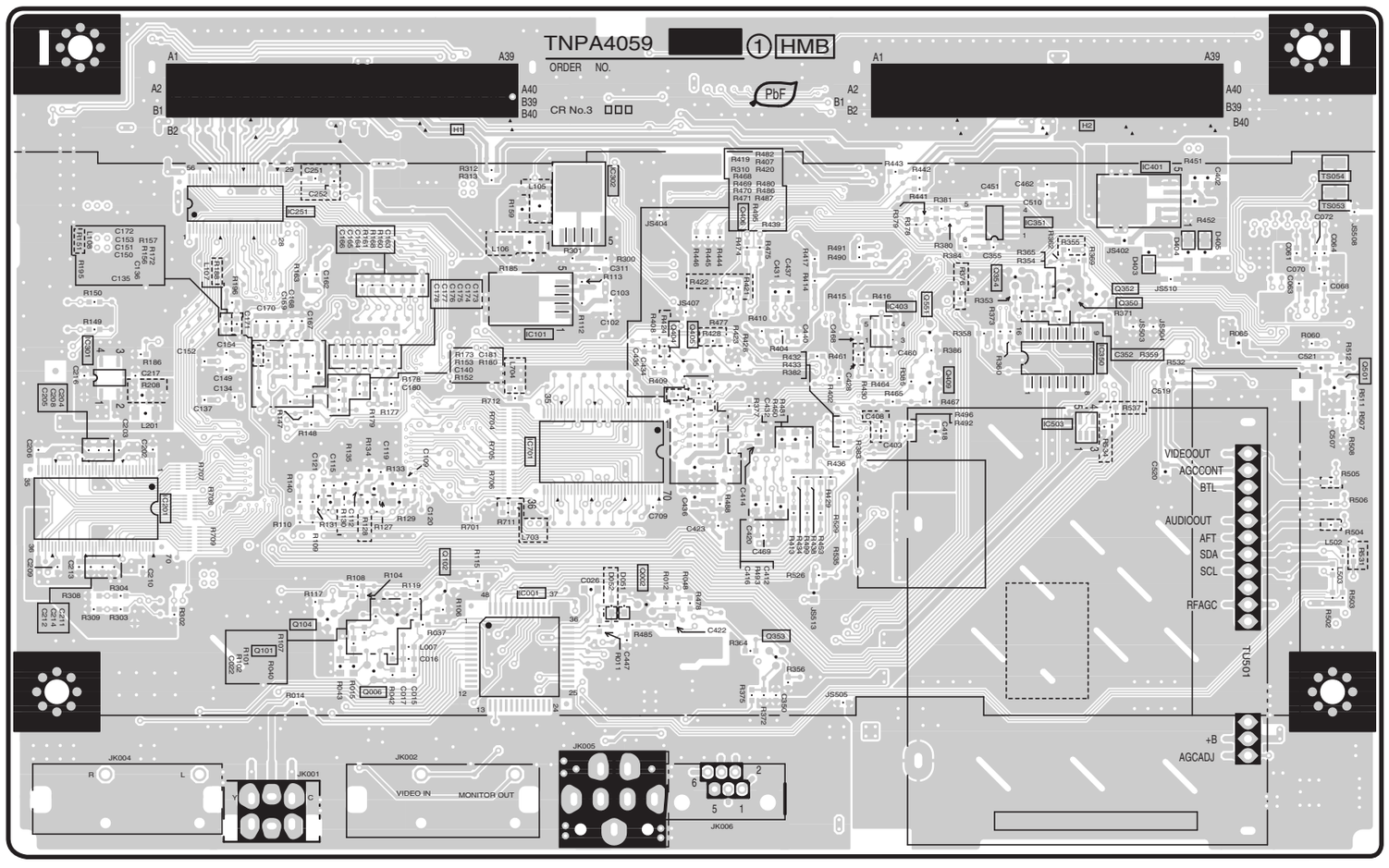

14
16
12
Battery
Tuner block ass'y
1
2
7
13
11
3
10
9
8

9.5. Parts Location (2)



10. Schematic Diagram for printing with A4

HMB-BOARD (FOIL SIDE)
TXNHMB1ZUTU

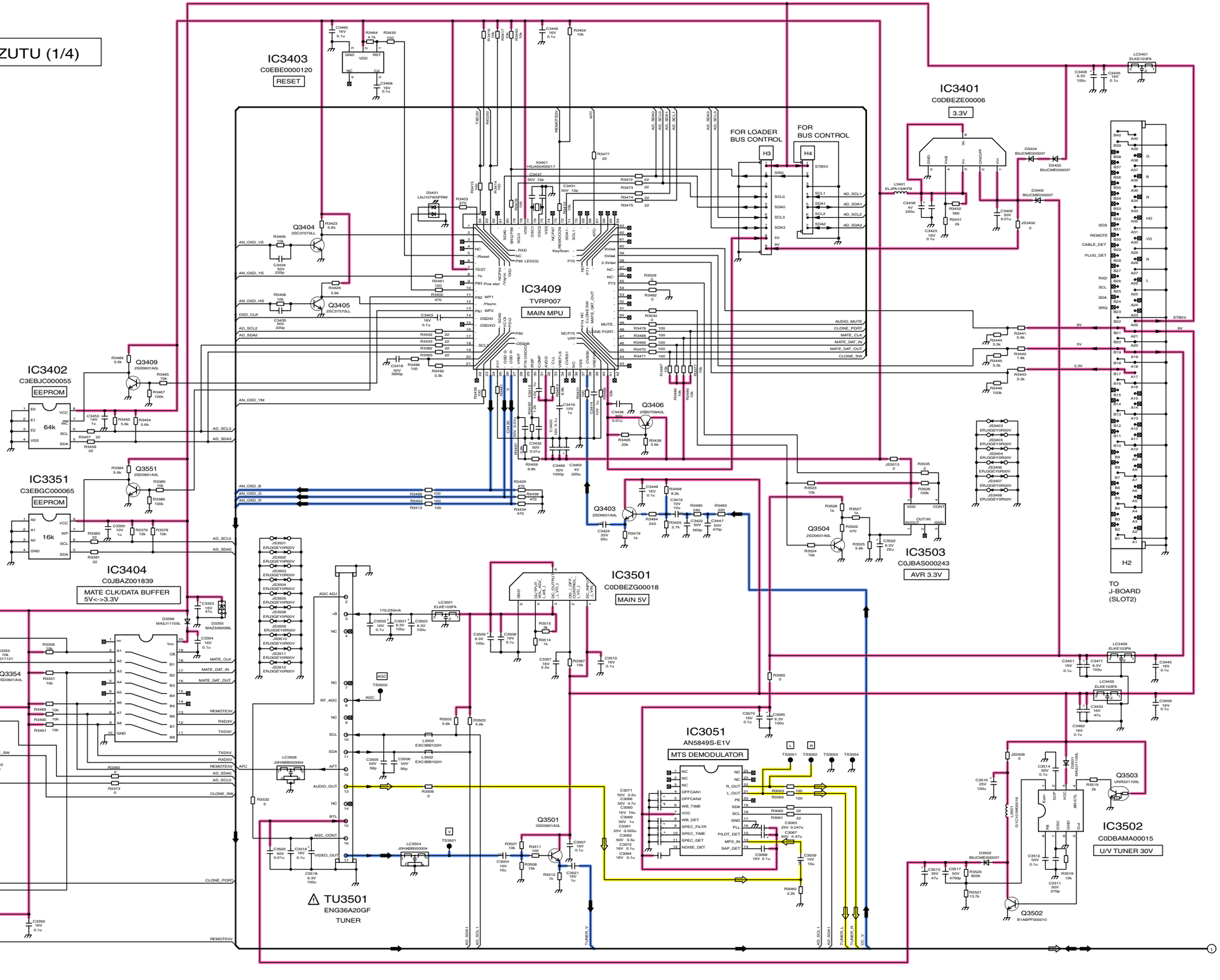


Parts Location

HMB-BOARD (FOIL SIDE)			
IC		**TRANSISTOR**	
IC3001	C-2	Q3002	C-2
IC3101	C-3	Q3006	B-2
IC3201	A-2	Q3101	B-2
IC3251	B-4	Q3102	C-2
IC3301	A-3	Q3104	B-2
IC3302	C-4	Q3350	E-3
IC3350	E-3	Q3352	E-3
IC3351	E-4	Q3353	D-2
IC3401	E-4	Q3354	E-3
IC3403	D-3	Q3404	C-3
IC3503	E-3	Q3405	D-3
IC3701	C-3	Q3406	D-3
		Q3409	D-3
		Q3501	F-3
		Q3551	D-3

TY-FB9TU
HMB-BOARD TXNHMB1ZUTU

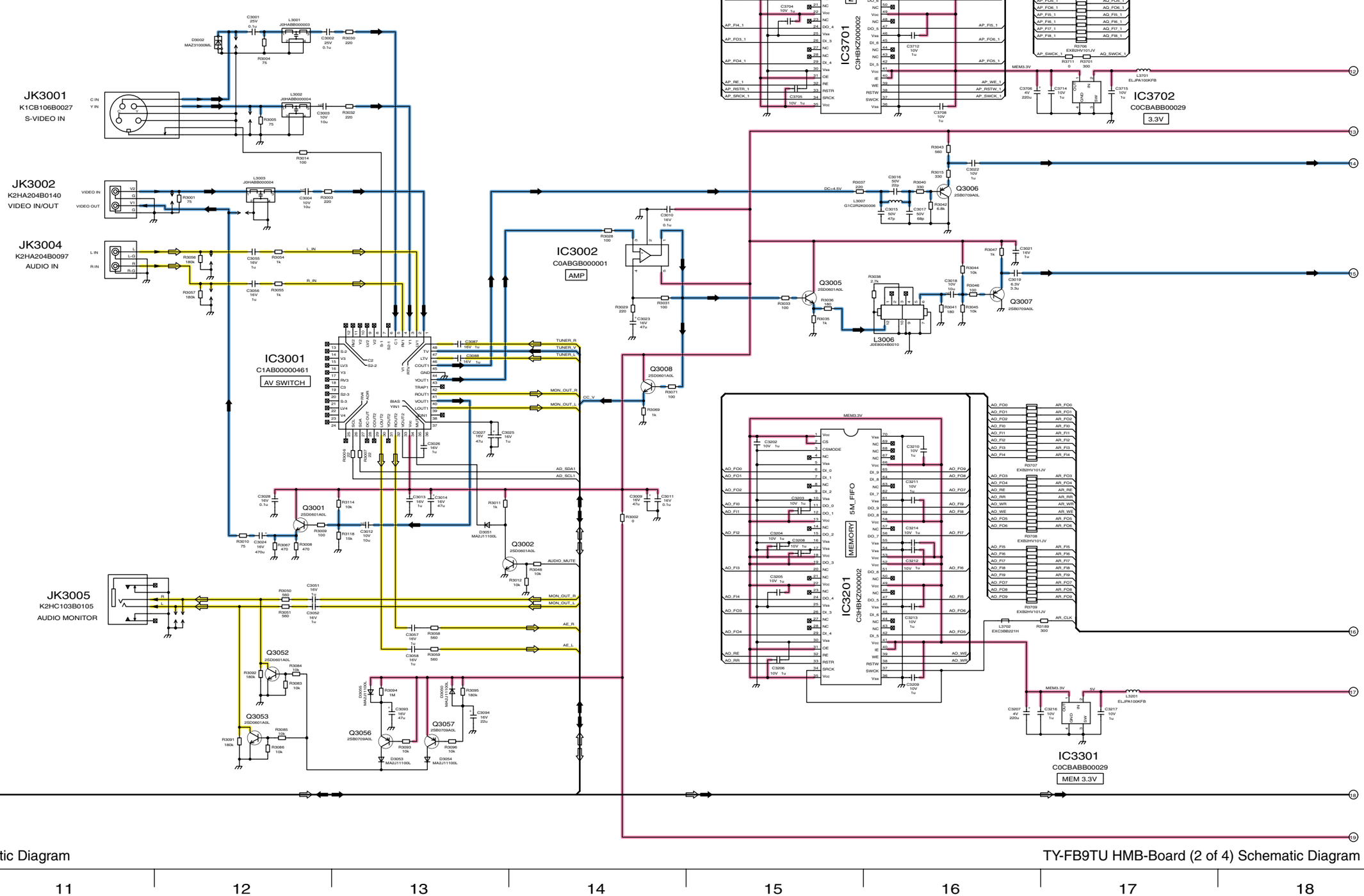
HMB-BOARD TXNHMB1ZUTU (1/4)



TY-FB9TU
HMB-Board (1 of 4) Schematic Diagram

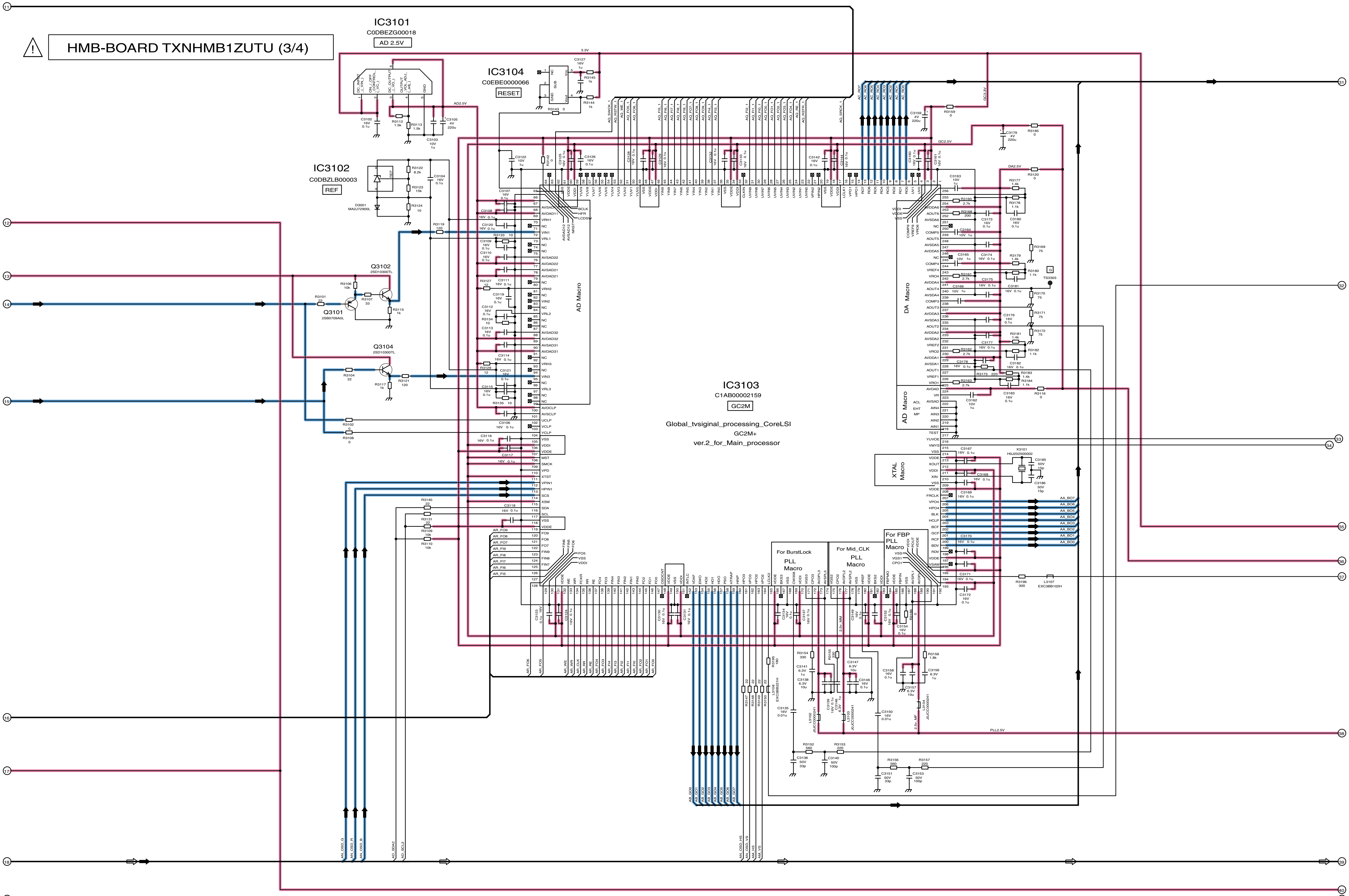
TY-FB9TU
HMB-Board (1 of 4) Schematic Diagram

HMB-BOARD TXNHMB1ZUTU (2/4)



TY-FB9TU
HMB-Board (2 of 4) Schematic Diagram

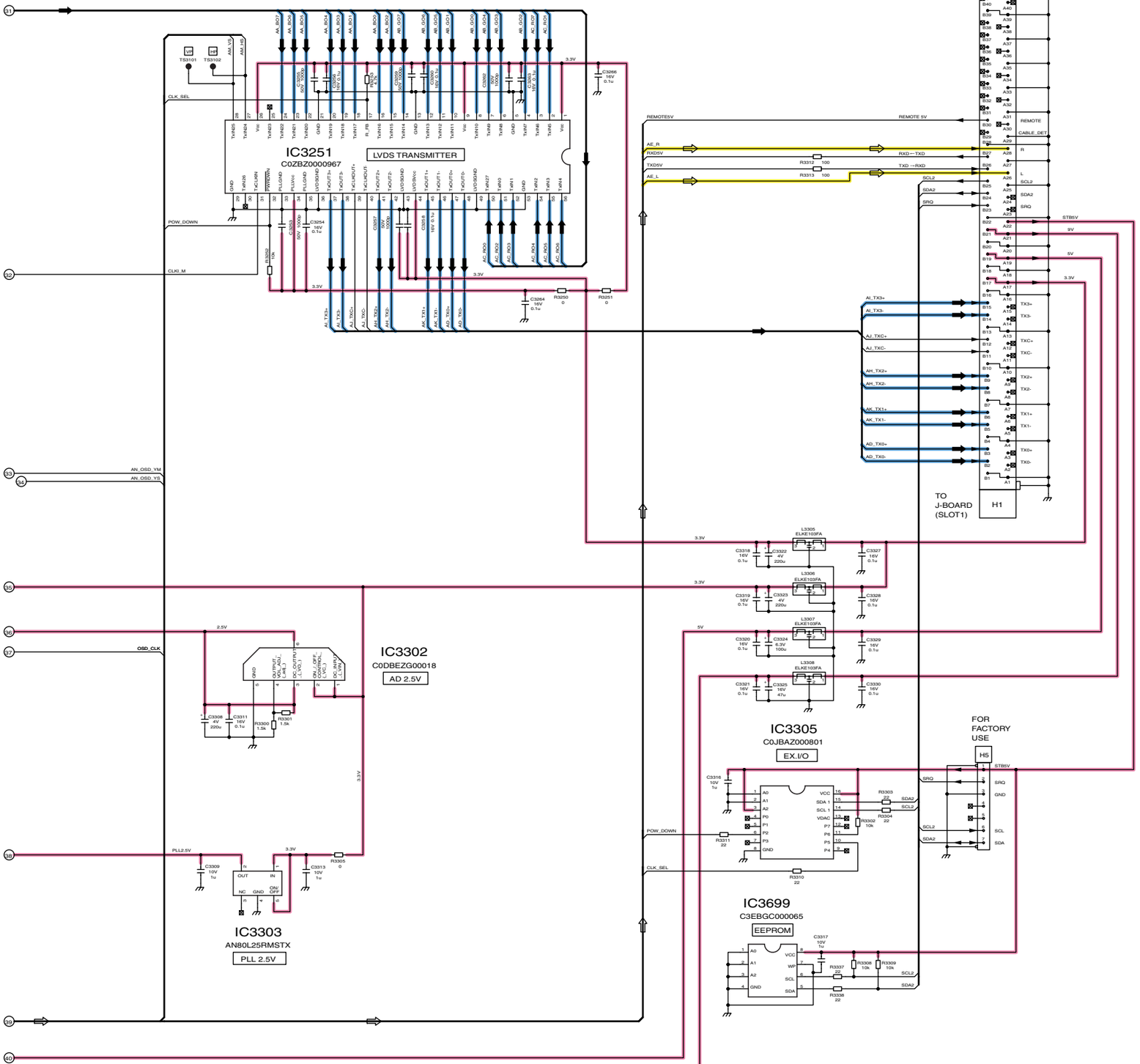
TY-FB9TU HMB-Board (2 of 4) Schematic Diagram



TY-FB9TU HMB-Board (3 of 4) Schematic Diagram

19	20	21	22	23	24	25	26	27

HMB-BOARD TXNHMB1ZUTU (4/4)



TY-FB9TU HMB-Board (4 of 4) Schematic Diagram

TY-FB9TU
HMB-Board (4 of 4) Schematic Diagram

8 Block and Schematic Diagram

8.1. Schematic Diagram Notes

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.

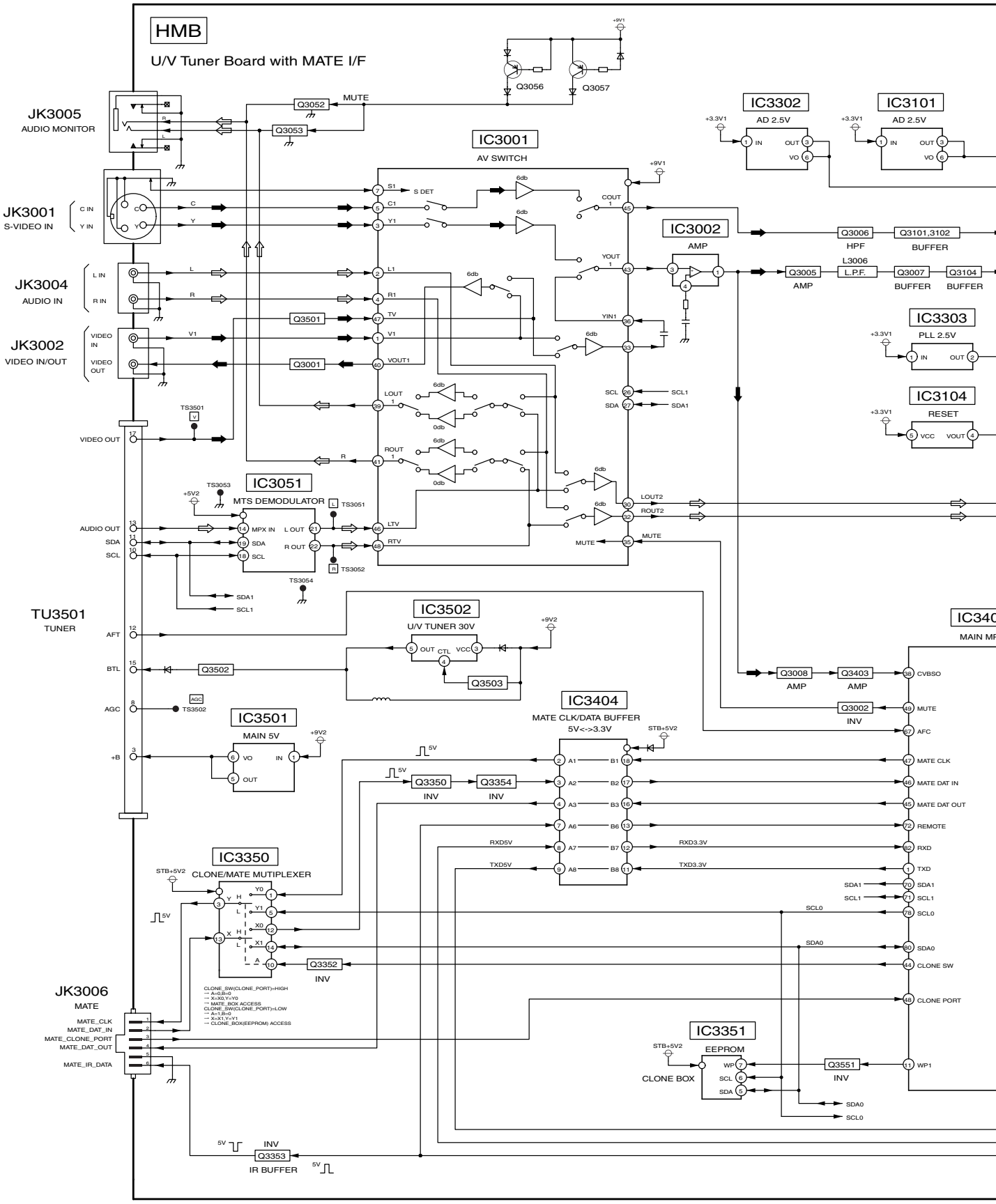
Notes:

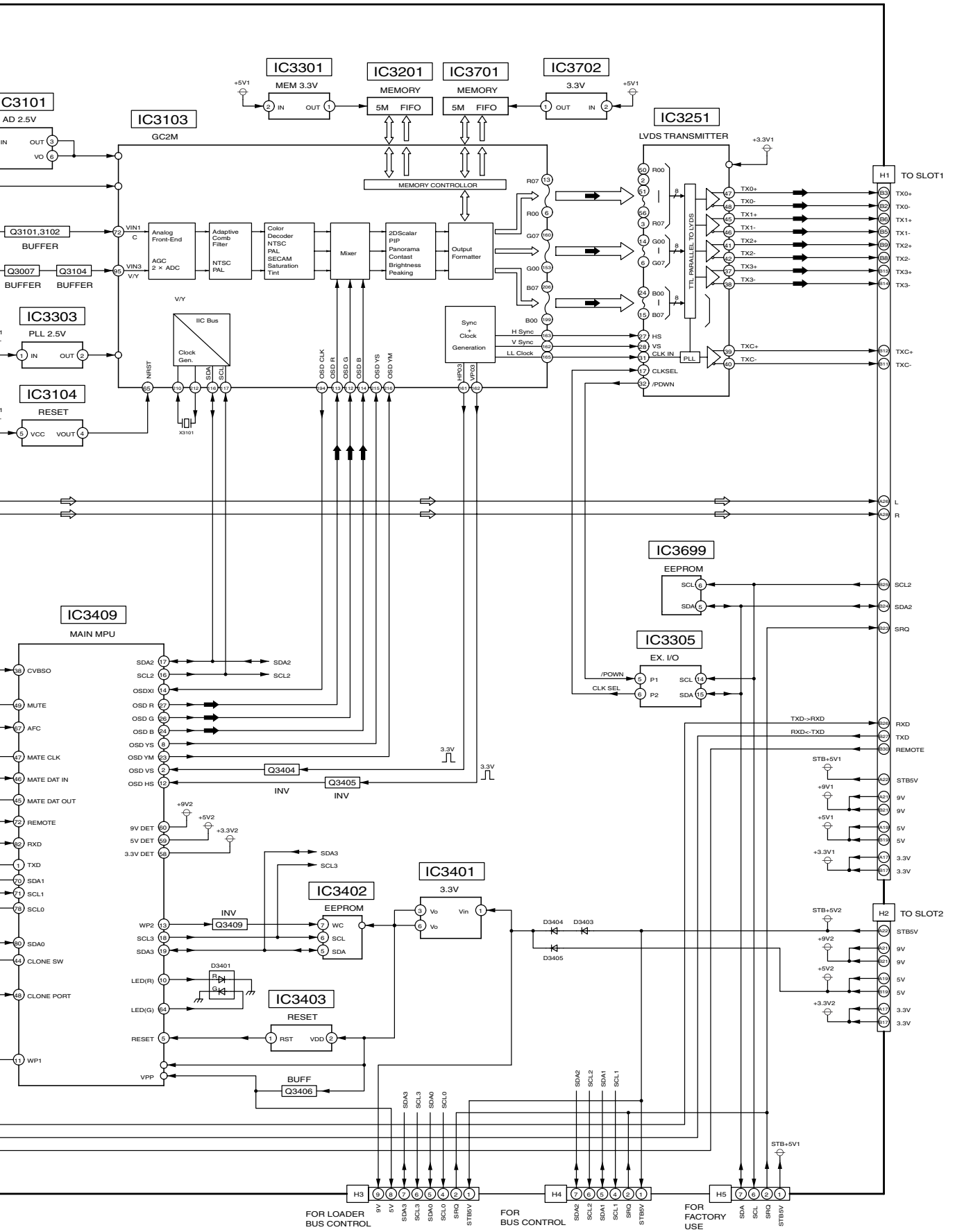
1. **Resistor**
   Unit of resistance is OHM [Ω] (K=1,000, M=1,000,000).
2. **Capacitor**
   Unit of capacitance is μF, unless otherwise noted.
3. Coil
   Unit of inductance is μH, unless otherwise noted.
4. Test Point
   ⚲ : Test Point position
5. Earth Symbol
   ⏚ : Chassis Earth (Cold) ⏚ : Line Earth (Hot)
6. Voltage Measurement
   Voltage is measured by a DC voltmeter.
   Conditions of the measurement are following:
   Receiving Signal ..... Colour Bar signal
   All customer's controls ..... Maximum positions
7. When arrow mark (↗) is found, connection is easily found from the direction of arrow.
8. Indicates the major signal flow. : Video ➡ Audio ⇨
9. This schematic diagram is the latest at the time of printing and subject to change without notice.

Remarks:

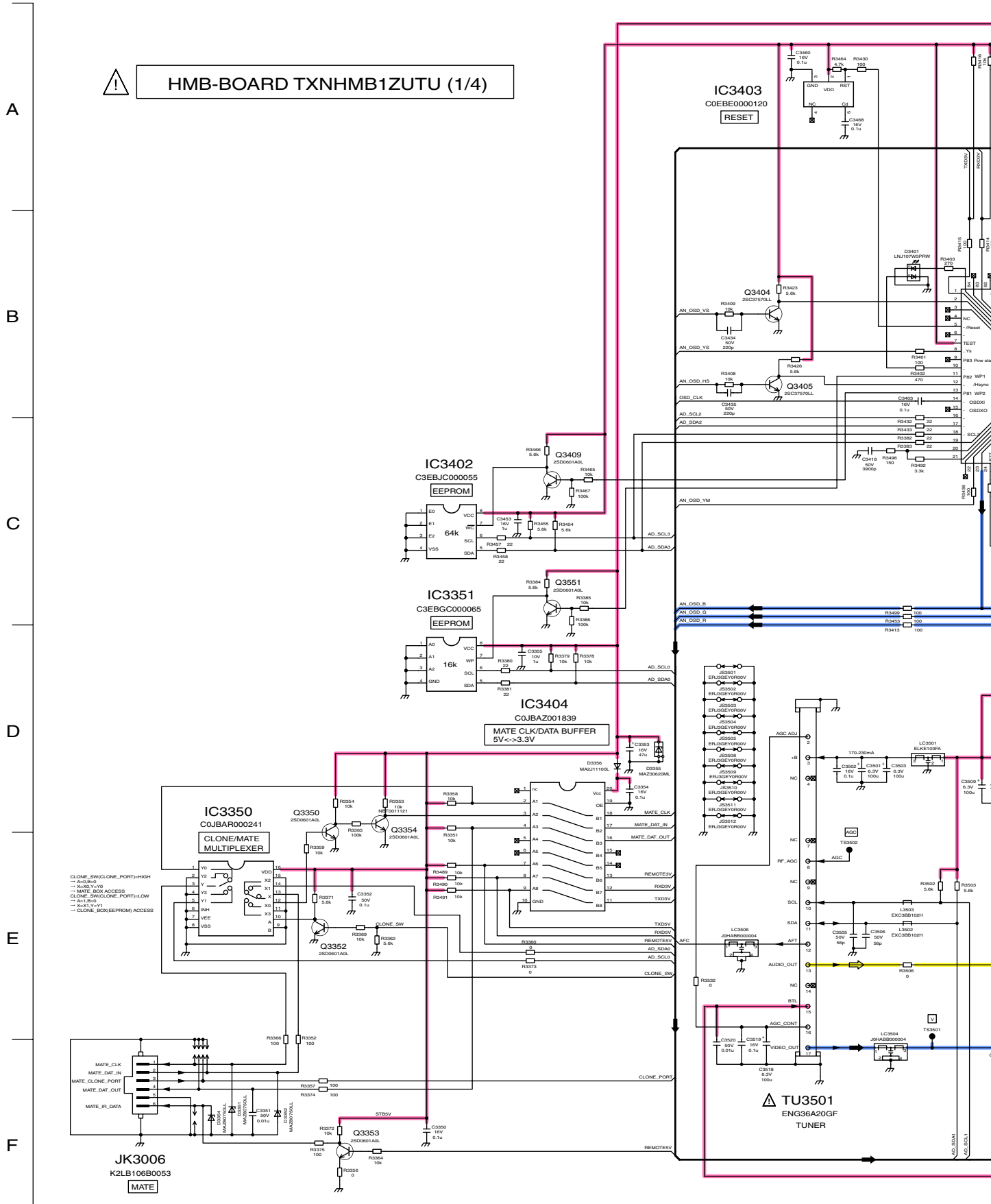
1. The Power Circuit contains a circuit area which uses a separate power suppier to isolate the earth connection.
   The circuit is defined by HOT and COLD indications in the schematic diagram. Take the follwing precautions.
   All circuits, except the Power Circuit, are cold.
   Precautions
   a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
   b. Do not short- circuit the hot and cold circuits or a fuse may blow and parts may break.
   c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.
      Connect the earth of instruments to the earth connection of the circuit being measured.
   d. Make sure to disconnect the power plug before removing the chassis.

8.2. HMB-Board Block Diagram

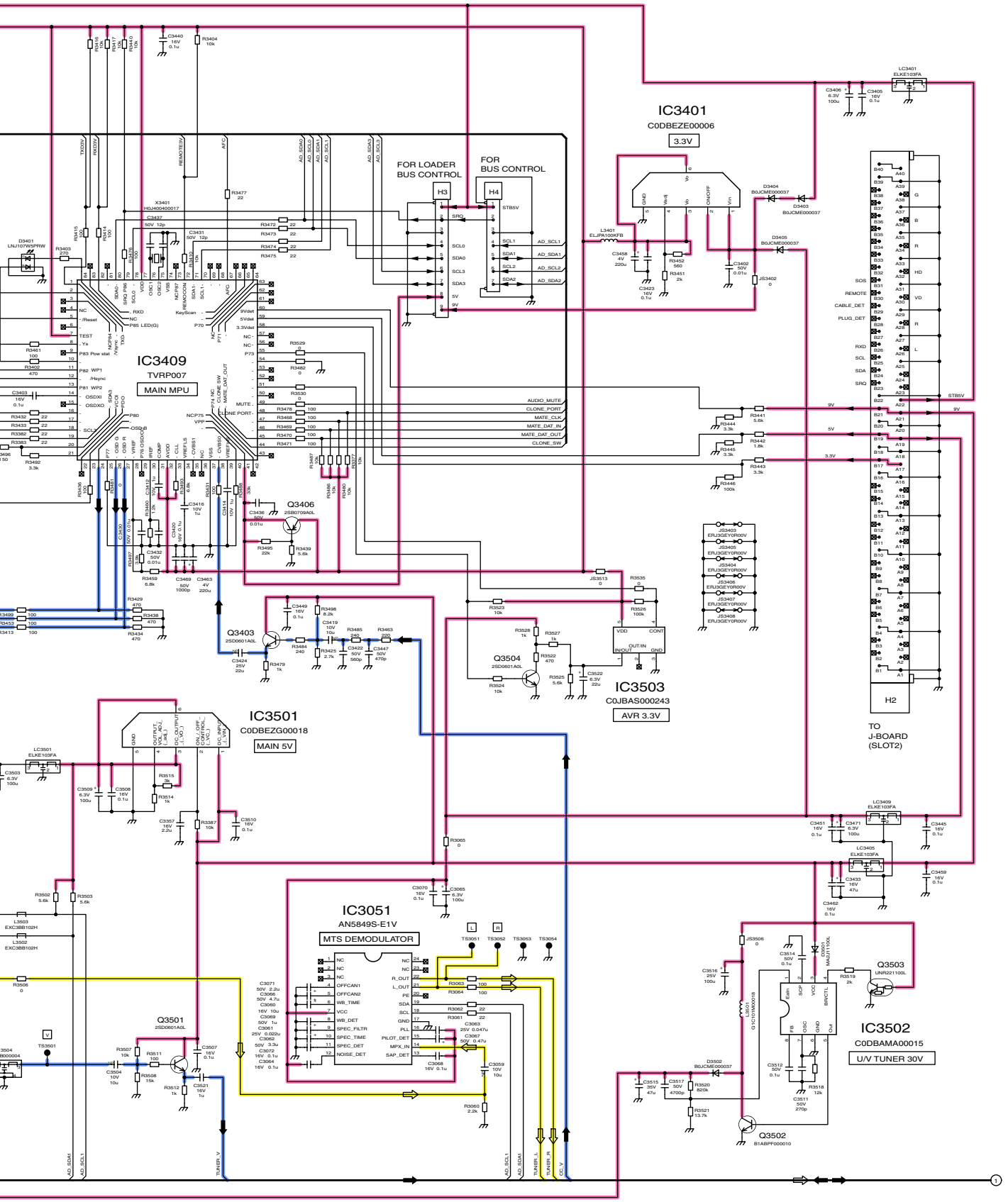



IC3101
AD 2.5V
IC3103
GC2M
IC3301
MEM 3.3V
IC3201
MEMORY
5M FIFO
IC3701
MEMORY
5M FIFO
IC3702
3.3V
IC3251
LVDS TRANSMITTER
MEMORY CONTROLLOR
Q3101,3102
BUFFER
Q3007
BUFFER
Q3104
BUFFER
Analog Front-End
AGC 2 × ADC
Adaptive Comb Filter
NTSC PAL
Color Decoder NTSC PAL SECAM Saturation Tint
Mixer
2DScalar PIP Panorama Contast Brightness Peaking
Output Formatter
TTL PARALLEL TO LVDS
PLL
IC3303
PLL 2.5V
IC3104
RESET
IIC Bus
Clock Gen.
Sync + Clock Generation
H1
TO SLOT1
IC3699
EEPROM
IC3305
EX. I/O
IC3409
MAIN MPU
Q3404
Q3405
INV
IC3401
3.3V
IC3402
EEPROM
Q3409
IC3403
RESET
Q3406
BUFF
D3401
D3404
D3403
D3405
H2
TO SLOT2
H3
FOR LOADER BUS CONTROL
H4
FOR BUS CONTROL
H5
FOR FACTORY USE
TXD->RXD
RXD<-TXD
STB+5V1
STB+5V2
+9V1
+9V2
+5V1
+5V2
+3.3V1
+3.3V2
3.3V
TY-FB9TU
HMB-Board Block Diagram

8.3. HMB-Board (1 of 4) Schematic Diagram



TY-FB9TU
HMB-Board (1 of 4) Schematic Diagram

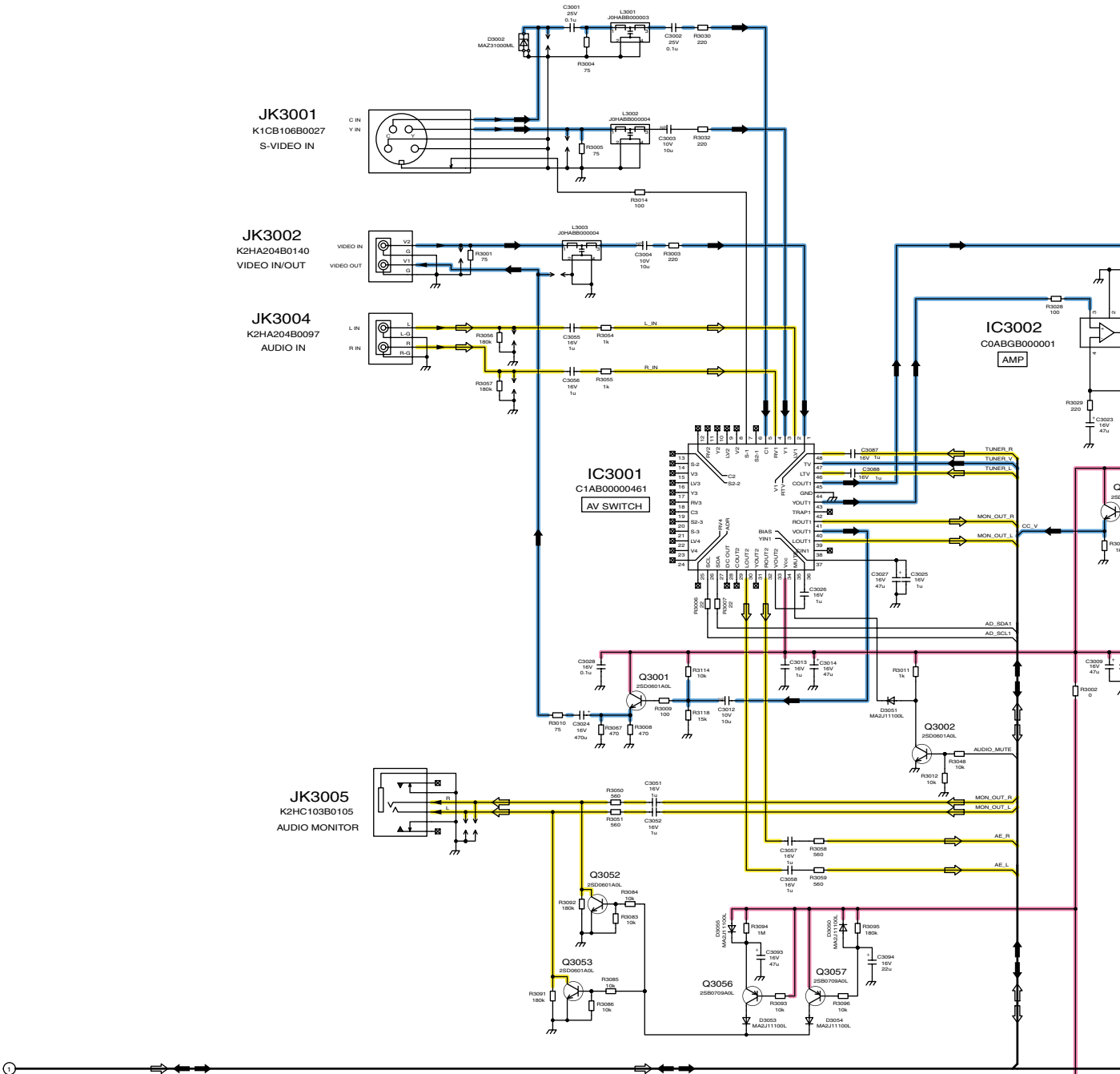


TY-FB9TU
HMB-Board (1 of 4) Schematic Diagram

5 6 7 8 9

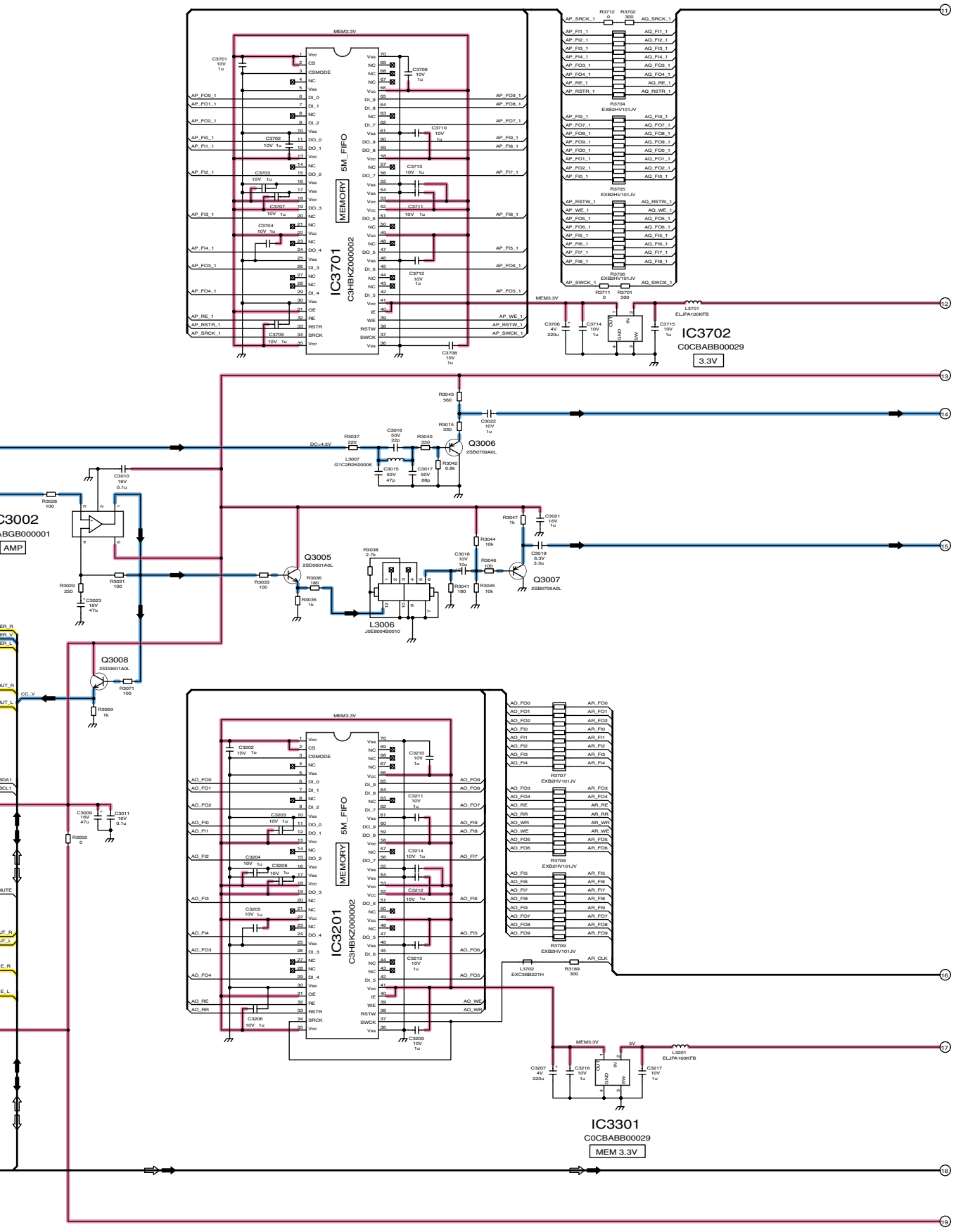
8.4. HMB-Board (2 of 4) Schematic Diagram

⚠ HMB-BOARD TXNHMB1ZUTU (2/4)



TY-FB9TU
HMB-Board (2 of 4) Schematic Diagram

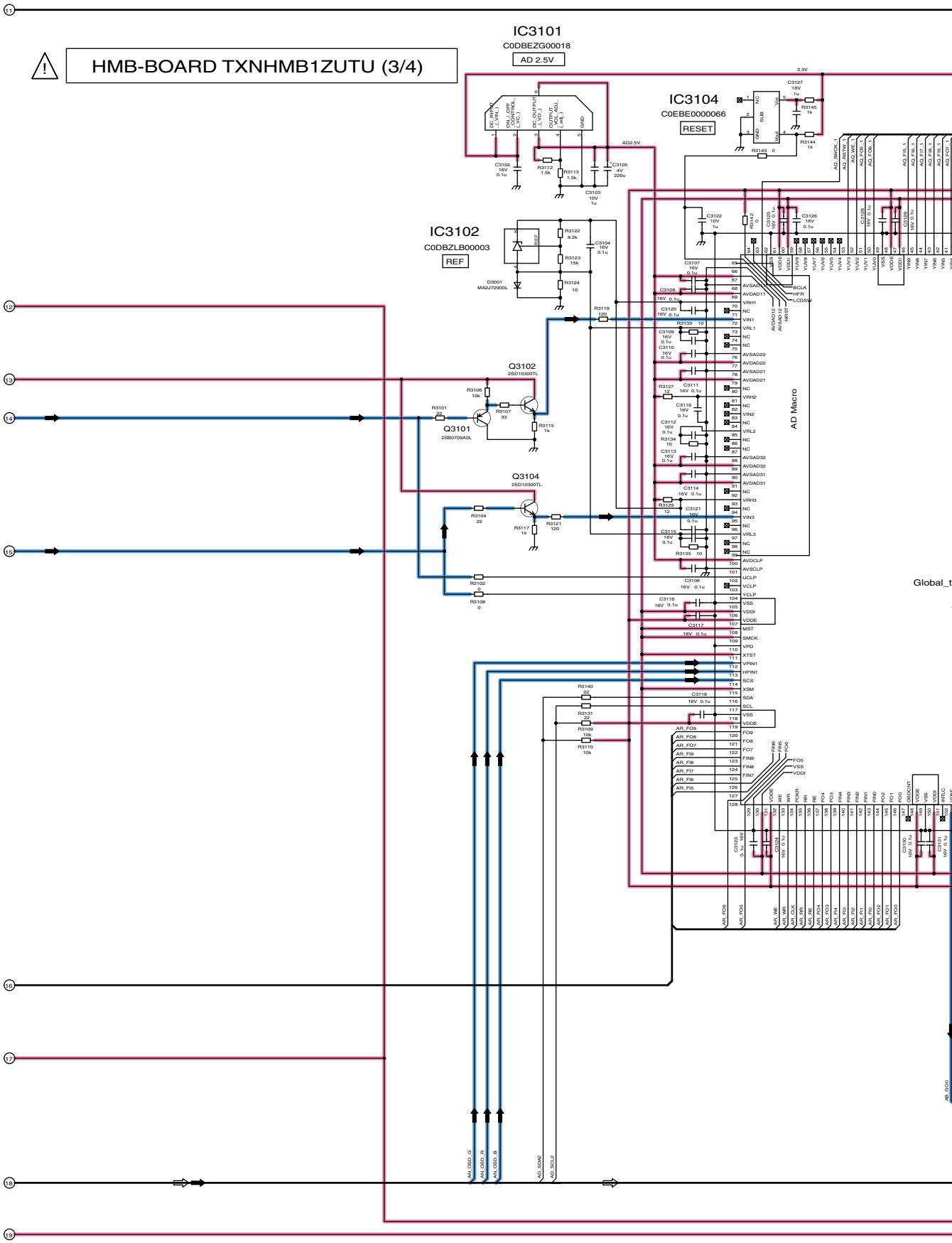
10 | 11 | 12 | 13 | 14



TY-FB9TU HMB-Board (2 of 4) Schematic Diagram

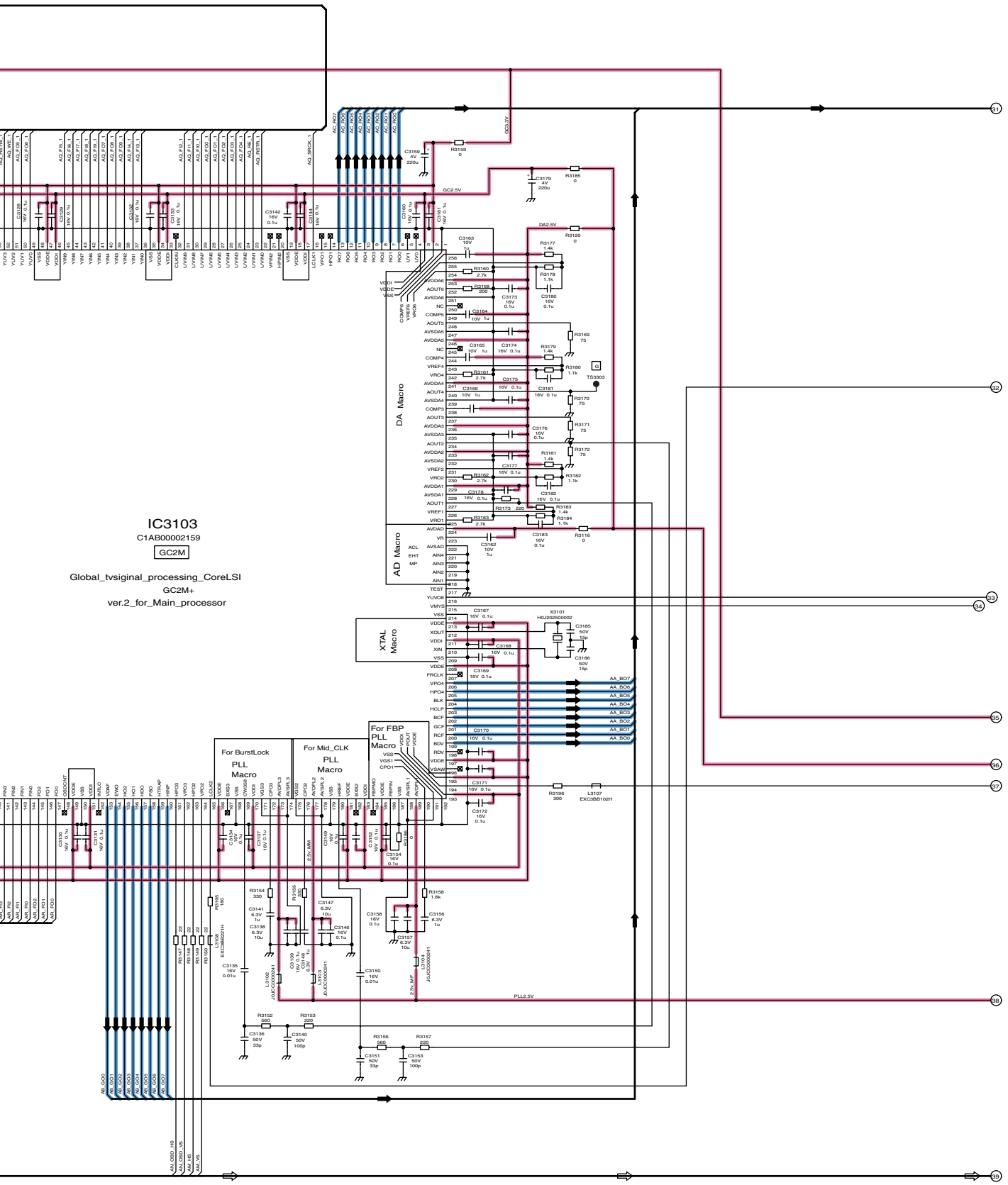
14	15	16	17	18

8.5. HMB-Board (3 of 4) Schematic Diagram



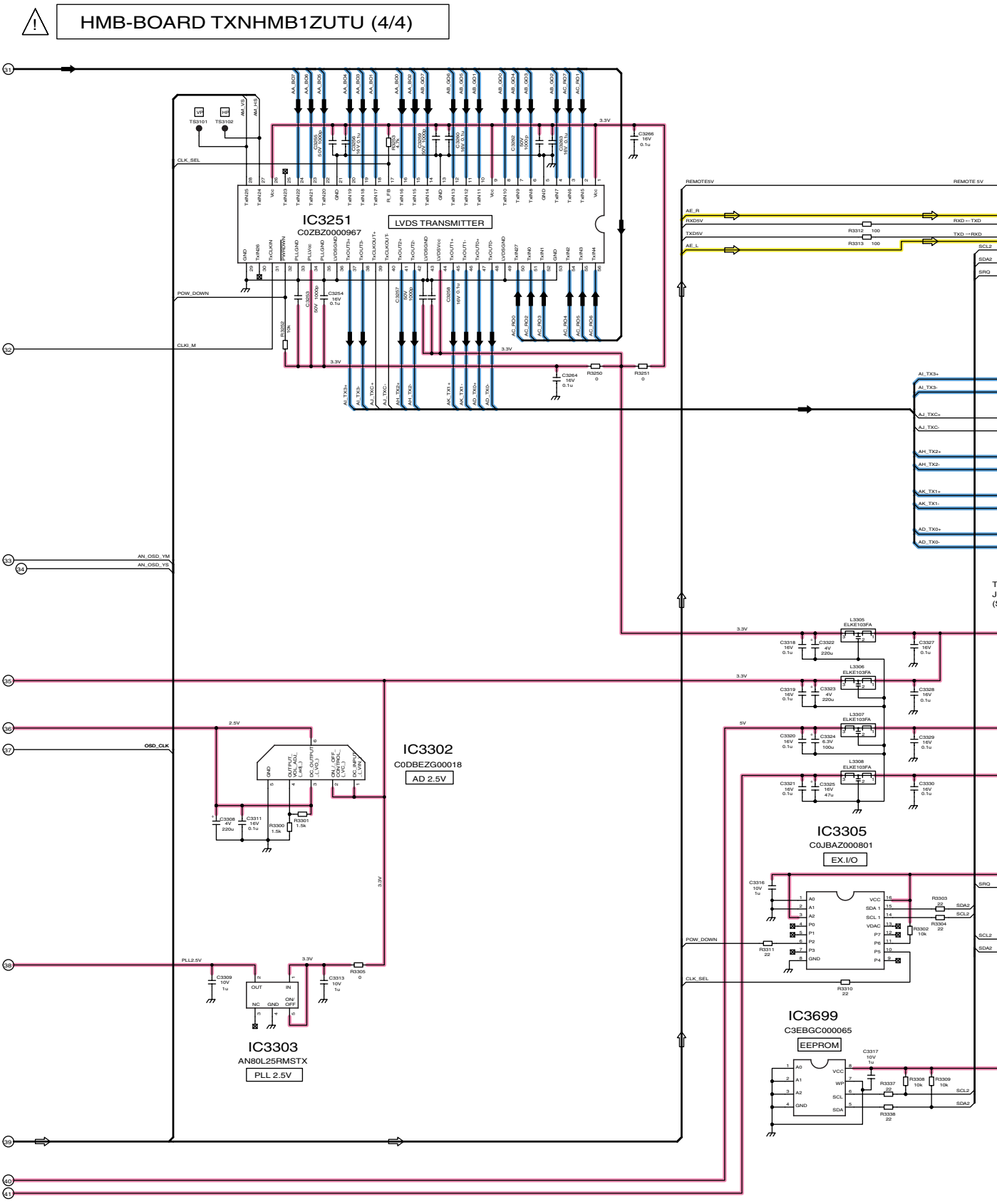
TY-FB9TU HMB-Board (3 of 4) Schematic Diagram

19	20	21	22	23

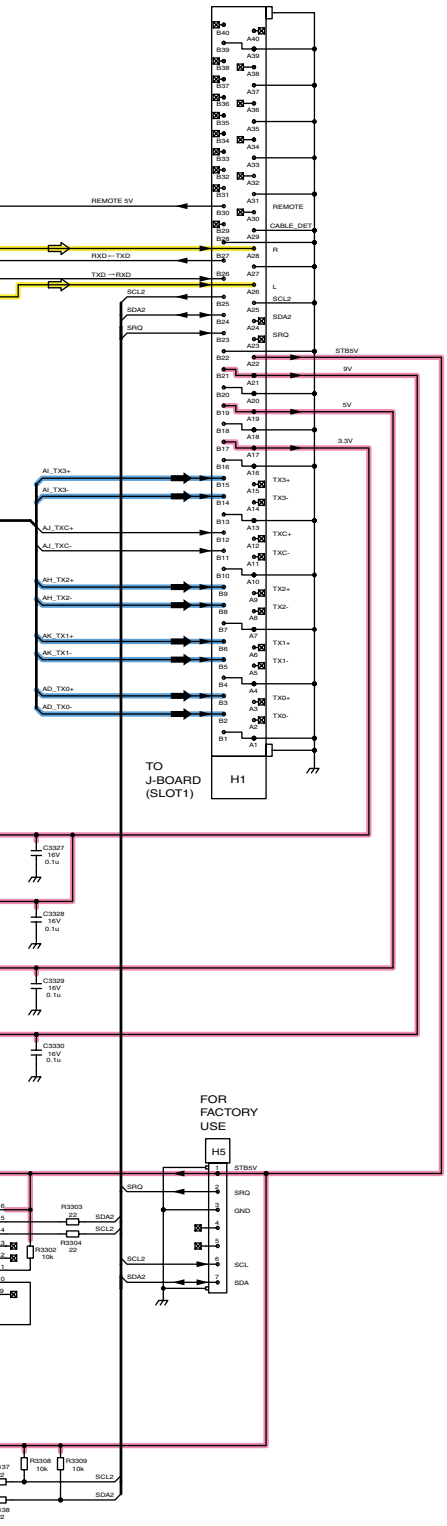


TY-FB9TU HMB-Board (3 of 4) Schematic Diagram

8.6. HMB-Board (4 of 4) Schematic Diagram

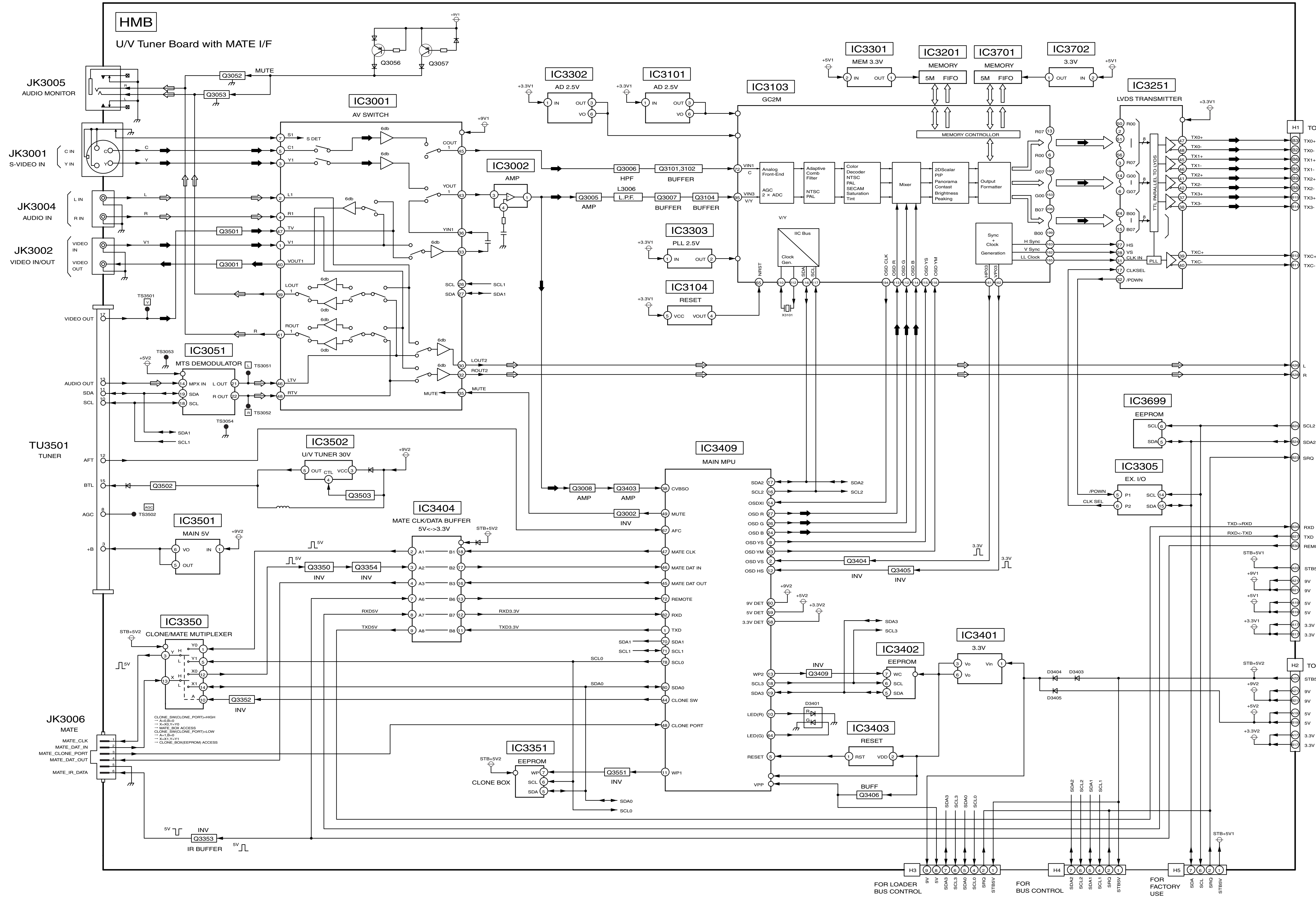


TY-FB9TU HMB-Board (4 of 4) Schematic Diagram



TY-FB9TU
HMB-Board (4 of 4) Schematic Diagram

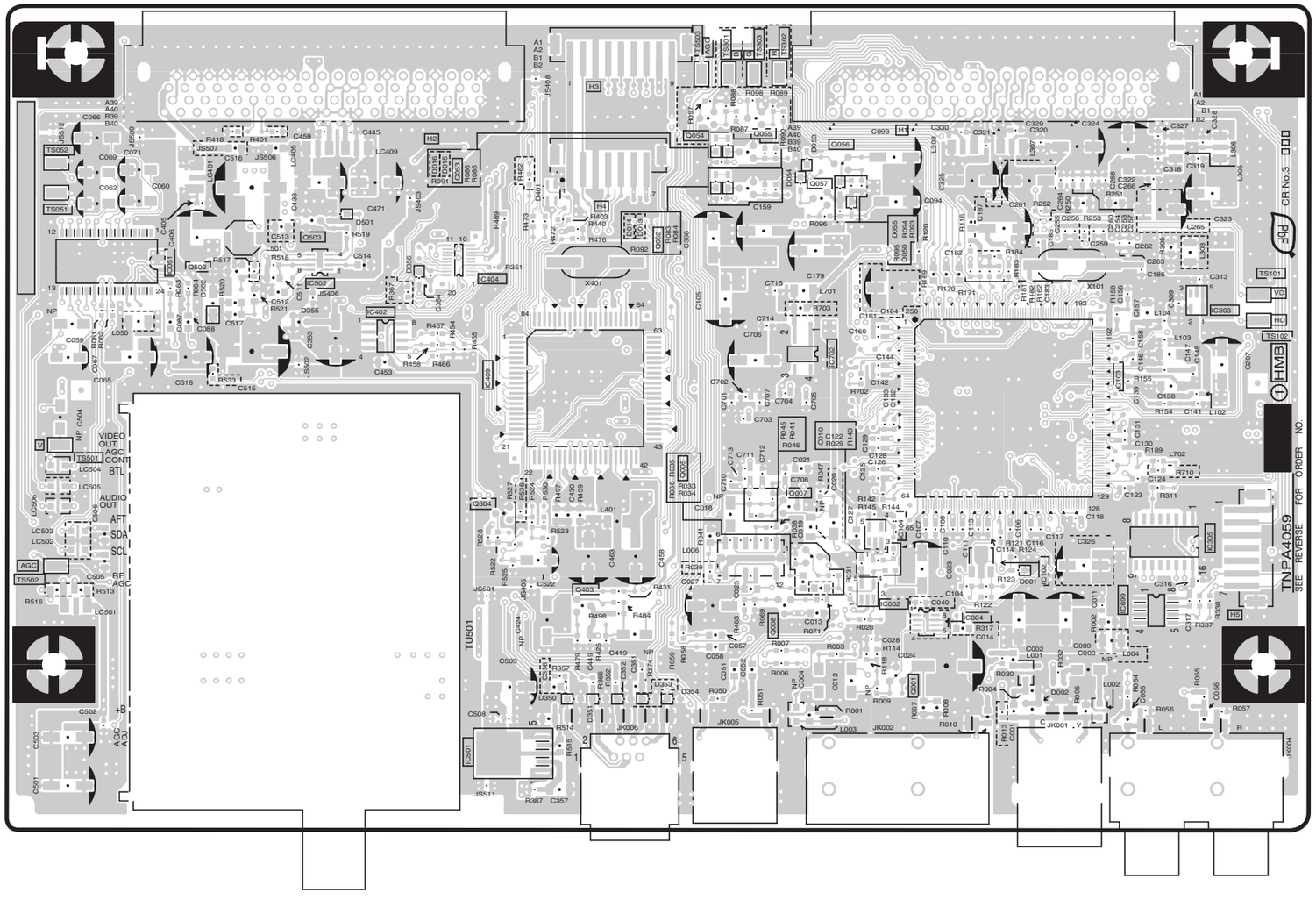
32	33	34	35	36



TY-FB9TU
HMB-Board Block Diagram

TY-FB9TU
HMB-Board Block Diagram

HMB-BOARD (COMPONENT SIDE)
TXNHMB1ZUTU



Parts Location

HMB-BOARD (COMPONENT SIDE)			
IC		**TRANSISTOR**	
IC3002	D-2	Q3001	E-2
IC3004	E-2	Q3005	D-3
IC3051	A-4	Q3007	D-3
IC3102	E-2	Q3008	D-2
IC3103	E-3	Q3052	D-4
IC3104	D-3	Q3053	D-4
IC3303	F-4	Q3054	D-4
IC3305	F-3	Q3055	D-4
IC3402	B-3	Q3056	D-4
IC3404	C-4	Q3057	D-4
IC3409	C-3	Q3403	C-2
IC3501	C-2	Q3502	B-4
IC3502	B-4	Q3503	B-4
IC3699	F-2	Q3504	C-3
IC3702	D-3		

TY-FB9TU
HMB-BOARD TXNHMB1ZUTU